DOMESTIC ENGINEERING

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Profits are small on staples, higher on specialties. A plumber and fitter should learn to sell specialties, because, while they bring him larger profits, they do not tie up large sums of capital. A profit on a steam trap may be as large as that on a house heating boiler, and the capital invested be a tenth or even less. But, whatever you sell, let this guide you,—handle none but articles bearing the maker's name. behind which he stands with a guarantee.

Wrought Pipe for Soil Pipe Stacks

The durability of wrought iron pipe when used for soil pipe in the Durham system of house drainage has been recently attacked by the Plumbing Inspector of St. Louis, who states that he has found in several instances that pipe installed approximately ten years had become so decomposed that it was possible to pull sections of it out with the hands or crush it very easily. So far as we know this is the first account of the failure of wrought iron pipe in Durham house drainage systems, nor do we know that any test as to the life of wrought pipe under such conditions of usage has ever been made. We published last week a report by a committee of the American Society of Heating and Ventilating Engineers upon the relative degree of corrosion noticed in pipes supplying water for domestic purposes, but this gives no information as to what would be apt to occur when wrought iron pipe or steel pipe is used for soil pipe stacks. With the inauguration of steel construction of office buildings the use of the Durham system became quite general, and that form of sewerage is still generally adopted in buildings of that class. If wrought iron pipe or steel pipe cannot safely be used for such purposes for a longer period than ten years, sanitary engineers ought to know it. We shall be very glad to receive reports from master plumbers who have installed the Durham system as to whether they have observed any deterioration in the pipe when used for the conduction of house drainage. Plumbing inspectors are in a particularly good position to observe any conditions of this character and we trust that they will favor us, and the trade in general, by reporting any failure of wrought iron or steel pipe used in this way. The report ought to cover an investigation as to the character of the whole stack and should include observation of various classes of buildings in which sewage may differ in its character. It is a very important subject and a decision must not be reached upon too small an amount of evidence. We will therefore welcome a widespread correspondence from our readers on this point.

* * *

Reduced Prices on Steel

The unexpected has happened. The managers of the great steel corporation have decided to "modify" prices at which their products will be sold and it is plainly intimated that these "modifications" will be subject to variation, and will be sufficient in any particular instance to "secure the business." A difference of opinion exists in the minds of observers as to whether this breaking of prices on steel products will benefit the building trades or have the opposite effect. Build-

ing in general should be stimulated greatly by reasonable prices for structural steel. The general commercial condition would be immensely improved by reasonable prices for steel rails, and the volume of plumbing and heating business would be increased by reasonable prices on tubes. Whether the announced intention of the steel corporation to "modify" prices to such a point as will "get the business" will stimulate or depress buying remains to be seen. It is certainly true that buyers do not like to purchase on a falling market, and this caution which is characteristic of buyers may result in purchases being made for immediate consumption only. Nor do buyers enjoy a maket which has no bottom. A good buyer in St. Louis will scarcely feel like placing large orders for goods when he is given to understand in advance that a buyer in Omaha may get a better price. It may safely be inferred, however, that the United States Steel Corporation is in the hands of astute men and that its enormous financial interests will not be jeopardized by an unprofitable price war. We may therefore reasonably expect that the present chaotic condition will resolve itself into a more reasonable one, in which the price will bear a just proportion to a high grade product. The sooner this condition is reached, that much sooner will the trades represented by "Domestic Engineering" enjoy unrestricted growth.

* * *

Sanitary and Engineering Advice Desired

A specification of plumbing fixtures for manufacturing buildings presents an interesting problem to the sanitary engineer. Given workmen who are careless, whose sense of decency and good taste may not yet have been raised to a very high level, and whose use of plumbing fixtures will be severe, and we have a problem for solution which is worthy of thought. These remarks are called for by the reception of the following letter, to which the attention of our readers is turned and the courtesy of suggestions requested:

"I have been requested to specify plumbing fixtures for a six-story fireproof concrete construction factory for the manufacture of valves, pipes and fittings. It is desired that the fixtures be the most sanitary for the purpose at a moderate cost. It develops that the men in the old factory, although there have been wash sinks for them, do not use these sinks, but instead use individual wash buckets. It would, therefore, seem inadvisable to specify large factory wash sinks, and it would seem preferable to specify individual wash sinks, although, of course, this is going to take up considerable valuable space. I had thought of specifying something inexpensive in the way of individual wash basins, as, for instance, Standard Sanitary Mfg. Co.'s P537 enameled basins, supported from the wall by a galvanized iron sink bracket, with possibly a galvanized iron or nickel plated brass tap with a single faucet placed, say, 12" above the basins, so that the bucket could be placed under the faucet if it would be desired.

"On the question of urinals it would seem that the 'Ideal' solid porcelain urinal, similar to Trenton Potteries Co. 500-k, placed in batteries of from two to four, and flushed by an automatic urinal tank, would possibly be the best proposition, although this would have to set on the floor and the lip project above the floor to prevent the dirt from the foundrymen's feet falling into the urinal proper and stopping it up. The individual urinal bowl with slate stalls might be a pretty good proposition were it not for the fact that the floor, no doubt, would be fouled considerably. The enameled iron lipped urinal trough, on the order of the 'Syphon Eduction,' plate P-1653 of Standard Sanitary Mfg. Co.'s catalogue, might be a fair proposition.

"Regarding the closets, I suppose the individual closet bowl is the proper thing, and it is a question as to the type, whether the chain and pull, seat action open tank, or the seat action closed tank. There might be some objection to the pull tank on account of certain of the factory men's hands being very much soiled at all times. Then again some of them may be so careless as to not pull the chain. There is also a question in my mind as to the proper sort of partitions for these individual closets, whether they should be slate or galvanized sheet steel, or probably something else. There is also a question in my mind as to whether the individual closet bowls, which would be in the foundry part of the building, should not be with integral crockery seat.

"I would appreciate very much hearing from some of the readers of your paper on this subject, or receiving any information direct which you may care to send me. Yours very truly,

"J. A. Farley."

Referring to the fact that the workmen in the old factory do not use the wash sinks provided for them, but use individual wash buckets instead, may be due to two things: (1) That the factory manager does not insist upon discipline and permits inferior appliances to be used, or (2) the wash sinks are unsanitary and unfit for use. In the new factory the wash facilities provided should be of a satisfactory quality and the workmen made to use them.

Concerning the closets: The writer's supposition that individual closets are the proper sort to use is perfectly correct. Under no circumstances should the latrine type of closet be permitted.

We purposely refrain from making any further comment upon the problem at this time, preferring that our readers have an opportunity of making suggestions, which will be printed, and which will not only benefit the firm making the inquiry, but which will be of lasting and permanent value to all readers of "Domestic Engineering."

Mr. Jawback—"This gown is not becoming to you, and it is expensive. Why did you buy it?"

Mrs. Jawback—"Because the clerk looked as if he thought I couldn't afford it."—Cleveland Leader.

Hot Water for Domestic Use—XX*

EDITED BY JNO. K. ALLEN

Mem. Am. Soc. Inspectors of Plumbing and Sanitary Engineers; Mem. Royal Sanitary Institute of Great Britain; Assoc. Mem. Am. Soc. Heating and Ventilating Engineers; Hon. Mem. Chicago Architectural Club.

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HEATING WATER WITH STEAM IN CONTACT.

One of the simplest and best methods for heating water with live steam, is to bring the steam into direct contact with the water to be heated, instead of causing it to circulate through pipe coils, submerged in the water. The reason that this is a good method lies in the fact that it is the quickest, the steam parting with its heat to the water almost instantaneously, and the method is economical as it requires no submerged coils or other expensive apparatus. Owing to some disadvantages of this method of heating water it is not used in domestic practice but finds its greatest field of usefulness in industrial plants heating large vats of water. It likewise is extensively used to heat water in swimming pools, and for heating water for dish washing in hotels, restaurants and large institutions where many dishes are soiled every day.

The usual method of bringing the steam into contact with the water is to force it through a perforated pipe, located near the bottom of the tank, and covered with water. The manner of piping the steam into the tank of water is shown in Fig. 23. A capped and perforated pipe *a*, is illustrated submerged in a tank of liquid. The perforated pipe which is raised slightly above the bottom of the tank, to permit the escape of steam from all sides, is connected to the vertical line of pipe which is valved to control the supply of steam and permit it to be turned off or on at will, by the attendant. If the tank is a large one, instead of a single perforated pipe, a number of them may be connected to a manifold header supplied with steam from a large pipe having a capacity of the three smaller ones.

In order that the steam may escape freely and with the pressure sufficiently reduced so it will not be carried direct to the surface of the water in the tank, the escape pipes should be liberally supplied with perforations. To insure the best results the combined area of the perforations should be equal to 8 times the area of the perforated pipe to equal it in capacity. Ordinarily the individual perforations need not be very large. In brass or copper pipe, or in any other medium which is not liable to become obstructed by a formation of rust or other deposits the perforations need not be over ⅛-inch in diameter. In very large vats, however, heated with steam discharged through very large pipes, the perforations may be from ¼-inch to ⅜-inch in diameter.

Copper and brass are suitable materials for perforated pipes, when used for heating pure water, or liquors which contain no acids injurious to those materials. When, however liquids containing acids are to be heated, a metal, alloy, or other substance which will withstand the action of the acid must be selected. Tubing made of Tobin Bronze will resist the action of most acids used in manufacturing processes and this material should be kept in mind by plumbers, not only for use in connection with steam water heaters, but for any other purpose found useful for in the calling.

This article tells how to heat water with steam by direct contact.

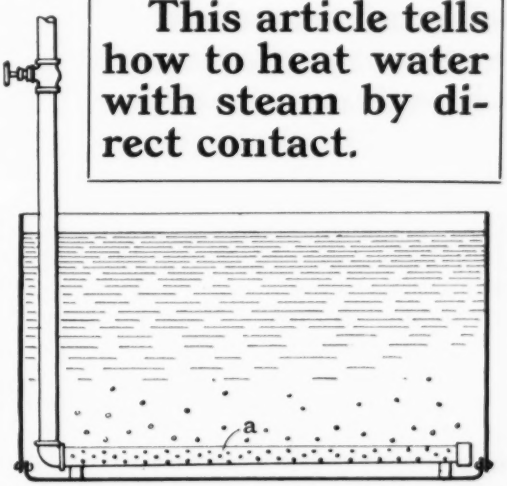


Fig. 23. Shows how steam can be piped into a tank of water.

It must be borne in mind that only good, pure, live steam is suitable for heating water by direct contact. Steam which has been used expansively in engines, pumps or other apparatus is not suitable for the purpose. The reason for this lies in the fact that cylinder oils and other lubricants used around machinery come in contact with the steam passing through the cylinders and if the steam becomes saturated or charged with oil, as it very likely will, the oil would form on the surface of water in the tank, and attach itself to anything

*Previous installments in this series of articles were published March 7 and 21, April 4 and 18, May 2 and 16, July 11, August 15 and 29, October 3, 24 and 31, November 28, December 5 and 19, January 2, 9 and 16 and February 6. These back numbers can be obtained for 10 cents a copy.

which was put in or taken out of the water. Besides, for many industrial purposes, the taste of oil in the water used would spoil the article. For instance, if string beans or peas were being boiled in open vessels by means of steam in direct contact with the water, the oil in the steam would flavor the vegetables and render them unfit for canning. If on the other hand it were clothes that were being boiled, a deposit of oil on the fabrics might do great injury to them. For these reasons when heating water with steam in direct contact, only pure live steam should be employed.

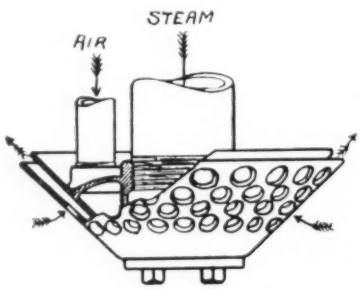


Fig. 24. Shows a nozzle for heating water noiselessly by means of steam in direct contact with the water.

A serious drawback to the use of steam for heating water by direct contact is due to the fact that when the steam is brought into contact with water in an open vessel it causes a loud rattling hammering noise, which drowns the sound of everything else nearby. This is caused by the steam bubbles which when they escape from the perforations start toward the surface, where, if they reach it, they collapse with a report. If, however, the water is very cold, the bubbles of steam are condensed or collapsed almost as soon as they come in contact with the water and the water rushing in to fill the vacuum caused by the collapse of the bubble, causes a report like the muffled discharge of a gun. For this reason, water is heated with steam in direct contact through perforated pipes, only when noise is not objectionable.

If a slight noise is not objectionable and the method adopted to overcome it is not objectionable for other reasons, water may still be heated by steam in direct contact, discharged through a perforated pipe. If, after the perforated pipe is set in place, the bottom of the tank to above the level of the pipe be covered with clean pebbles about the size of peas, there will be a noise when the steam is turned on, but it will not be so loud or annoying as when the pebbles are not used. The reasons for this are twofold. In the first place, the presence of the pebbles breaks up the steam bubbles into smaller sizes so that when they do collapse the collapsing bubbles are small and consequently have a mild report. In the second place the water cannot rush together so readily to fill the vacuum caused by the collapsing bubble and the more gradually the water comes together, the lighter will be the report.

When calculating the amount of steam which will be required to heat water by direct contact, a simple rule which will be found approximately correct, is to allow 1 pound of steam for each gallon of water to be heated. This is assuming that the water is no colder than 60 degrees Fahrenheit, and that the temperature need not be raised more than 180 degrees or 190 degrees Fahrenheit. If water must be heated to the boiling point an allowance of perhaps 1½ pounds of steam for each gallon of water will be found more nearly correct. A feature of heating water with steam in direct contact, which must not be overlooked, is the fact that the volume of water in the tank is thereby increased. This would naturally follow on account of the steam being discharged into the water. The allowance which must be made for this increase can be easily calculated when the quantity of water to be heated is known and the tank can be proportioned accordingly. When one pound of steam is condensed to water, the water, of course, will weigh as much as the steam did. That being true, for each pound of steam added to the water, the water would be increased in weight one pound, and as one pound of steam will be added to the tank for each gallon of water heated, all that will be necessary to find the total amount will be to divide the quantity of water to be heated by 8.33 which is the weight of one gallon of water and the quotient will be the number of gallons of water condensed from the steam which will be added to the water in the tank.

Heating Water With Steam Nozzles.

A nozzle for heating water, noiselessly, by means of steam in direct contact, is shown in perspective in Fig. 24. It consists simply of an outward and upward discharging steam nozzle, covered with a shield which has numerous openings for the admission of water so that the jet takes the form of an inverted cone, discharging upwards. To make the operation of the apparatus noiseless, air is admitted through a small pipe and drawn in by the jet. By mixing with the steam this air prevents the sudden collapse of bubbles, and the consequent noise which is such a great objection to heating by

direct steam in the old way. A valve or stop cock should be placed on the air pipe so the supply of air can be regulated to the quantity most desirable.

When water is to be heated to a less temperature than 165 degrees Fahrenheit and that temperature is sufficient for all domestic purposes, the air pipe need not be used, as the heater will operate noiselessly without it. If however, the temperature of the water must be raised above 165 degrees Fahrenheit, the air pipe should be used. When the pressure of steam is sufficient, air need not be delivered to the nozzle under pressure. When however, the steam pressure is low the air must also be delivered under pressure to insure the noiseless operation of the apparatus.

The Superiority of Iron over Lead for Waste Pipe under Bath-Room Floors*

By John C. Alford,
Supervising Plumbing Inspector, Chicago.

As a boy on entering the plumbing profession, it was the goal of my ambition to be able to wipe a joint. The plumber who could do the neatest job of lead work, and who could put up the most elaborate kichen piece (and there were some crackerjacks) generally went around with his chest expanded, and all the small fry looked upon him as a sort of idol. In those days lead soil pipe was still in vogue and pan closets were the rule.

Things have changed wonderfully. Who in the present day would attempt to put in a pan closet? Iron has replaced lead for soil, waste, vent and supply pipes; and we see less and less lead being used. In some of the highest types of buildings today there is not a pound of lead or a stick of solder used on the plumbing system. These include office buildings, schools and hospitals.

There must be a reason why this change has taken place. I will endeavor to give the reasons why, in my opinion, iron pipe is superior to lead, particularly for work under bathroom floors.

When a plumber roughs in a building, placing the soil and vent pipes in the walls and tests them, he cannot place the lead work under the floor with any assurance that it will be in the same condition when the building is ready to finish as when he left it. In fact he is not assured that the lead work will be there at all. It may be stolen and sold to the junk man, which in the past has very often been the case. The chances are that it will be stepped on and smashed by carpenters, plasterers or other mechanics on the job. If perchance the lead work passes safely through this stage of the building operations; on laying a wooden floor the carpenter may drive a nail into the pipe, which is not noticed until the water is turned on, when a stain showing on the ceiling below is the first indication that the carpenter has done his work only too well. Then the plumber generally had to pay the damage. If tile floor is put in, the tilesetter allows cement to drop into the trap and closet bend, which, when it hardens has to be chiseled out with the chance of cutting the lead. After the building is finished and occupied for some time the plumber gets a hurry-up call, and on tearing up the bathroom floor finds that his old friends, the rats, have eaten a hole into the pipe; or it may be that the lead bend has broken at the ferrule, the leak causing damage to finely decorated ceilings and walls, leaving a hole through which the deadly sewer air passes; or the leak might be caused by the lead breaking around the joint caused by constant contraction and expansion. These horizontal are the very pipes which should be tested and made tight.

In roughing in a building with all iron pipe, using iron or brass traps and iron closet bends, the work can all be tested at one time up to the floor and wall lines, which under the system of circuit waste and vent, leaves only two joints in the bathroom not tested. These are the closet connection and the joint at the basin trap.

Under this system we can be reasonably sure that the job will be tight when finished; that there will be no nails driven into the pipe; that rats will not make a meal off it; that the pipe will not sag and leave a pocket to fill up and cause a stoppage; and that the pipes will be in the same condition when the plumber is ready to finish as when he left them after roughing in. The connection between the flange of an iron bend and water closet will be much more secure than the old putty joint.

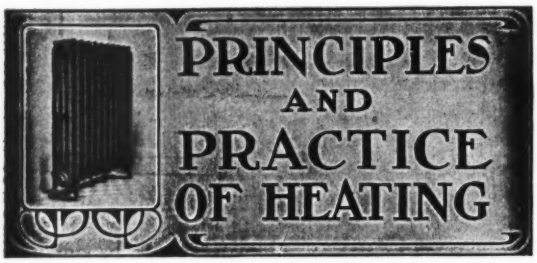
In connection with this subject it might be well to suggest that where a tile floor is to be put in, the pipes, whether of lead or iron, should be covered with tar paper to prevent the pipes disintegrating through the chemical action of the cement. This action will take place in pipes through which hot water passes.

The old-time plumber may say, "We have nothing but iron pipe butchers now." I take off my hat to the old-time plumber. He was there before

*Read at the fourth annual meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, held at Omaha, Neb., February 8-10, 1909.

I came, and it was he from whom I learned my first steps in the trade; but plumbers have progressed as much as plumbing. We might as well try to push back the flood as to try and do work as it was in days gone by. The up-to-date plumber takes advantage of every opportunity to advance the science of plumbing. He must be able to read a plan, and knows that one-sixteenth of an inch on a plan means something, and must be able to lay out his job with the many angle fittings which are so much used today, and the plumber who has charge of the installation of the plumbing system in any of our skyscrapers has as much resting on his shoulders as the general of an army.

Now I am not going to state that iron pipe is better than lead in all cases, for iron pipe is almost useless for wastes where acids are used, and there are other purposes for which iron cannot be used as well as lead, but for plumbing work in all ordinary buildings iron wastes and vents are much superior to lead.



Modern Hot Water Heating Illustrated XII*

By B. F. Raber, La Fayette, Ind.

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The Circuit System of Hot Water Heating.

This article will deal especially with a description of the third system of hot water ,heating namely, the Circuit System, and also with the determination of the amount of heating surface to be placed in a hot water radiator under specific conditions.

Plate XII, opposite, shows, merely in outline, an illustration of the Circuit System of hot water heating. As its name implies, it is a system wherein the circulation of water is taken through large loops, or circuits, rather than being, as in other systems, the circulation through each radiator more or less independent. Perhaps the most distinguishing feature of the circuit system is the fact that the distributing, or flow mains are in the attic, and the basement serves only to collect the return mains to the boiler. Reference should be made to Article VI of this series,* wherein is described this same circuit or Mills system as adapted to low pressure steam heating.| Many interesting points of similarity will be found.

*Previous installments in this series of articles were published March 7 and 21, April 4 and 18, May 2 and 30, July 11, August 22, October 3, 1908, January 16 and February 6. These back numbers can be obtained for 10 cents a copy.

How to Determine Amount of Heating Surface in Hot Water Radiators

The first consideration as to the advisability of the adoption of this system is the size of the job contemplated. From its very nature this system is readily seen to be best adapted to the larger installations. When the job is of such size that the items of piping and fitting labor become comparatively small, then this system is, without question, the one to use, whether for steam or for hot water.

Another consideration is whether or not the attic, as well as the basement, may be used for the running of mains. Upon these two principle points will the selection of the type of piping mainly depend. The designer can rest assured that where conditions warrant the choice of the circuit system excellent circulation and general satisfaction is most certain.

In description, briefly, the distinguishing features of the system may be touched upon, although these are, in every way, similar to those described in Article VI, of this series. The hot water riser is usually led directly upward to the attic, where it branches into the required number of mains. These, as they cover the attic, give off drops at desirable places, each drop usually feeding as many radiators as there are floors. The returns from radiators to basement are usually as many in number as there are radiators, although where an automatic temperature control system is used, connections may be made as shown in the plate.

One objection which may be urged against the circuit system for hot water is the fact that when

*Appearing in the issue of "Domestic Engineering" of May 30th, 1908.

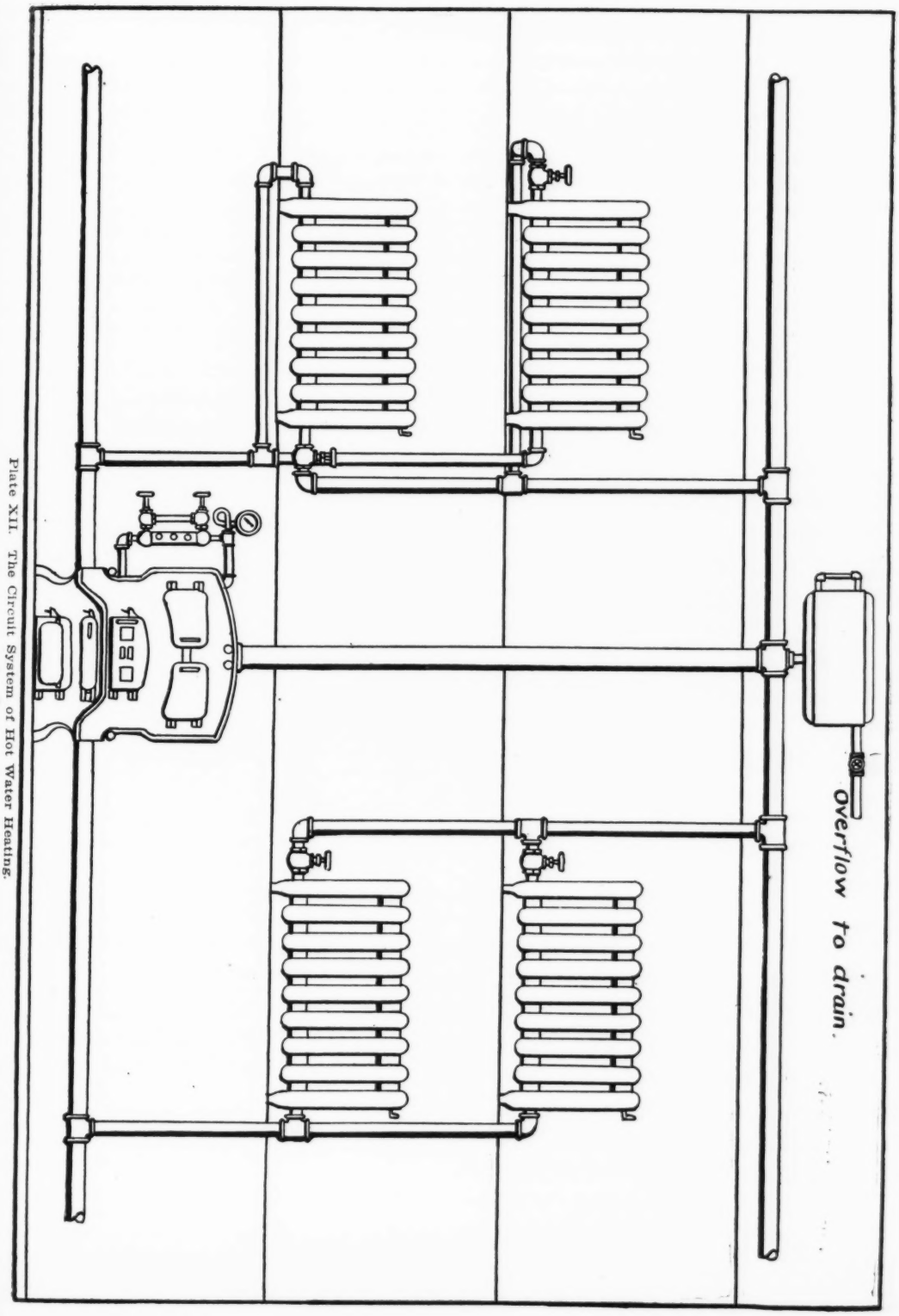


Plate XII. The Circuit System of Hot Water Heating.

first started, the effect of a fire in the heater is longer in reaching the radiators than with other systems. However, it will be admitted that this is not a serious difficulty, especially since starts are rather few in the larger installations.

In the article immediately preceding this one, mention was made of the flexibility of some hot water systems, should severe conditions demand. This same flexibility exists to a marked degree with the system described in this article. To change this system to a steam one simply requires draining the water to the proper level in the boiler and closing the sealing valve at the expansion tank. The entire installation is then ready to use steam in radiators designed for hot water and hence to increase its heating capacity about 50 per cent.

FIGURING RADIATION.

This opens the second discussion of this article, viz., the manner in which to determine the square feet of hot water radiation. In Article 1 of this series,* was given the rule for finding the square feet of steam heating surface. The corresponding rule, adapted to hot water heating surface, is stated as follows:

Add together the square feet of exposed glass area, 25 per cent of the exposed small area, and 4 per cent of the cubic feet of room volume. Then take 45 per cent of this sum as the square feet of hot water radiation for the room.

For rooms above first floor use 2 per cent of cubic contents instead of 4 per cent.

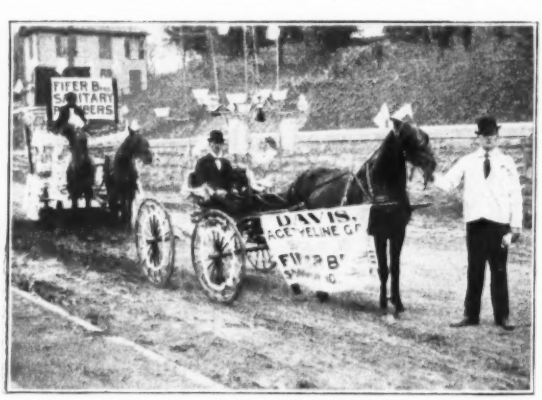
In general explanation of the use of this rule a few points should be noted. By *exposed* wall area is meant any wall, ceiling or floor surface exposed to a temperature lower than that of the room. If the cold air on the exposed side is not allowed to circulate, or is not in communication with the outside directly, as in a closed, but unheated basement, one half of the area exposed is taken, and affected by the rule. The term "4 per cent of the room volume" is considered elastic between the limits of 1 and 6 per cent, and it is in the use of this term that considerable discretion must be used by the calculator. For instance, in estimating a hall and stairway, this term is usually taken at 6 to 8 per cent, because of the well-known difficulty of hall-well heating. For the ordinary run of rooms, however, the rule will be found to be very satisfactory as stated, for the temperature difference common in hot water practice.

As an application, take, as in Article I, a 15x18-foot parlor, exposed on two walls, the same to have a 10′ ceiling and three windows, each 4′x7.5′. Then, for a first floor room our rule, applied, becomes, $3\times4\times7.5+.25\ [10(15+18)-3\times4\times7.5]+.04\times10\times15\times18$,

or, $90+60+108=258$ as the sum of the three areas indicated. Then, to obtain hot water radiator area, take 45 per cent of 258, or, 116 square feet. In Article I, the result for the steam radiator for the same conditions became 77 square feet. This shows an increase in the square feet of radiation for hot water of just 50 per cent.

That this ratio is correct may be proven theoretically, as follows: The heat given off by a radiator under constant conditions is at all times directly proportional to the *temperature difference* between the room air and the radiator surface. Consider the room temperature as the standard, 70 degrees. Now, with steam at the usual pressure in the radiator, its surface temperature would be about 220 degrees, and the *temperature difference* is 150. With hot water in the radiator, under conditions usual in practice, its average temperature would be about 170°, and the *temperature difference* would be 100. Hence for every 150 B. t. u. that the radiator would give off with steam, it would give off only 100 B. t. u. with hot water or, conversely, to give off the same number of B. t. u., a radiator for hot water must have approximately 50% greater surface than a steam radiator for the same room.

*Published March 7, 1908, in "Domestic Engineering."



Novel display of acetylene apparatus and fixtures by the hustling firm of Fifer Bros., plumbing contractors, at Staunton, Va.

The teacher was explaining to her scholars the meaning of the word transparent. "Anything," she said, "is called transparent that can be seen through. Now, Willie, can you give me an example?"

"Yes, ma'am," replied the boy. "A hole in the fence at the baseball grounds."

Tests of Coal and Briquets as Fuel for Heating Boilers

By Chas. H. Denison.

The United States Geological Survey has recently made experiments upon the combustion of fuel in house heating boilers, as contained in bulletin 366, U. S. Geological Survey. Tests were made at St. Louis, Mo., and Urbana, Ill., to determine the respective merits of raw coal, washed coal and briquets.

It was found in the tests at St. Louis that shortly after the briquets were put into the boiler the tar distilled and condensed on the flue surfaces forming a covering over the flue passages. When the fire was allowed to burn freely the coating on the flues ignited and this happened two or three times in an eight-hour run and increased the temperature in the flue to a maximum of 1500° F.

The briquets and coal burned in the tests came from many different states and territories. Most of the briquets, whether from eastern or western coal, smoked badly for several minutes after firing. It was found that the large briquets invariably gave an appreciably higher efficiency.

In Fig. 1 is shown one of the load regulators with its covering removed used at Urbana, Ill. "The steam from the boiler passes through the pressure regulator A into a 3-inch pipe which extends through the top of the receiver and nearly to the reducing tee at the bottom. Here the direction of the steam is changed and the entrained moisture separated, the dry steam passing up and out

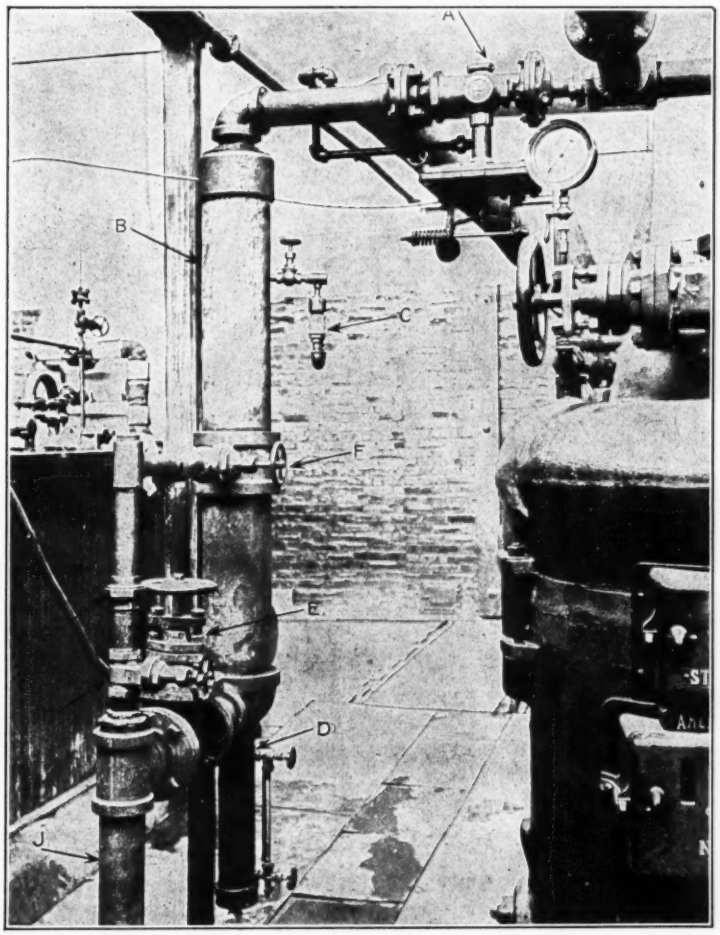


Fig. 1. Load Regulator used at the House Heating Plant at Urbana, Ill. Explanation of the reference letters is found in the accompanying article.

through the valve F to the exhaust main J, through an orifice plate in the 2-inch union G, the pipe J being open to the atmosphere. Pressure in the receiver is indicated by a mercury manometer at C, and another manometer (not shown) gives the back pressure in the pipe J, which is always under a slight pressure due to friction. The latter manometer is used to assist in adjusting the difference of pressure on the orifice. No attempt is made to compute the evaporation in this manner. The moisture separated from the steam collects in the 3-inch trap pipe D, the amount being indicated in pounds and fractions on the gage glass. Some moisture originally in the steam is of course evaporated in passing the reducing valve, consequently corrections of computed results for quality of steam and conversion to equivalent evaporation from and at 212° are made on the basis of the mean pressure maintained in the receiver—usually about 2 pounds.

Variation in load is obtained by the introduction of suitable orifices. The by-pass valve E allows changes to be made during operation, the orifice simply taking the place of a gasket in the union."

"The general arrangement of the plant at Urbana, Ill., is shown in Fig. 2. The boilers are set independently and each is provided with similar load regulators, return feed systems, and stacks. The flow is so arranged that the steam may be discharged to the atmosphere through an exhaust head above the roof of the building or into heating coils at the rear of the boilers. The coils contain 1,000 square feet of radiating surface, and are arranged in six sections, any number of which may be cut out and the amount of radiation changed in proportion. They constitute, with the overhead discharge pipes, the regular heating system of the experiment-station laboratory."

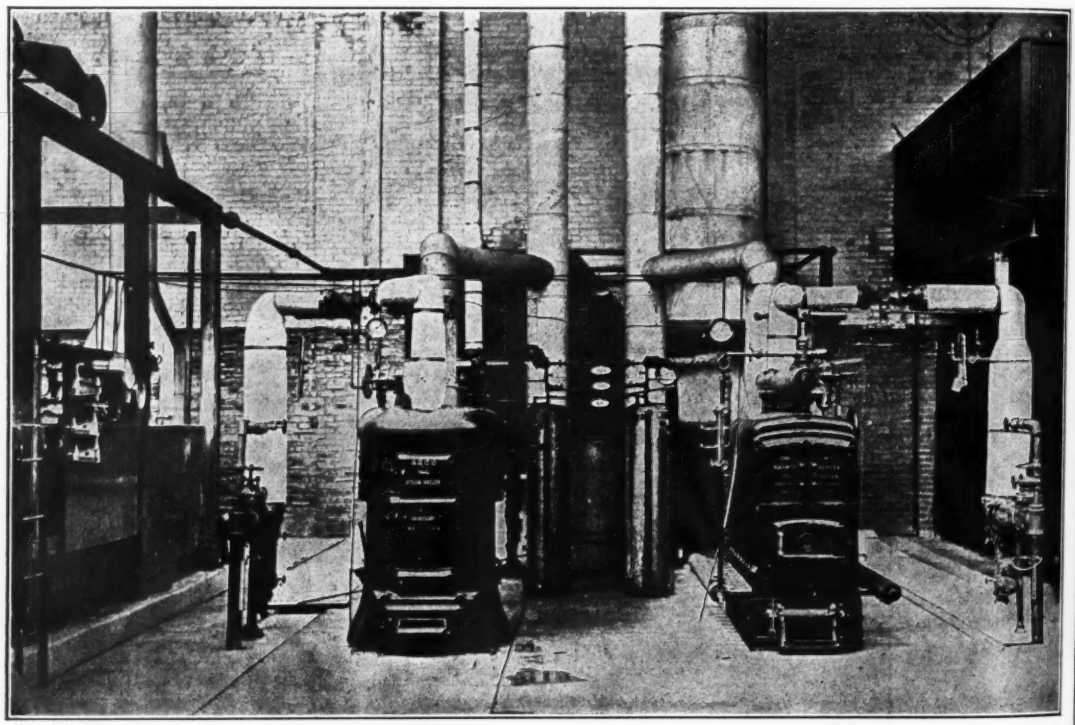


Fig. 2. House Heating Boiler Plant at Urbana, Ill., used in Government test.

In two of the tests at Urbana the flues of boiler "B" were completely stopped up at the end of an eight-hour run, from the soot formation caused by burning briquets. The conclusion reached upon a comparison of the results seems to show that the briquets used gave much smoke, which was due to the binder of pitch, and that the briquets showed no advantage over coal of a suitable size for house heating boilers and that briquetting good bituminous coal would be justified only when slack was used for material.

The test also showed that pitch binders are not suitable for a boiler working at the low tempera-

tures common in a house heating boiler, as the pitch binder volatilized and in most cases escaped unburned or was deposited on the surface of the boiler reducing its efficiency. The results indicated that coals containing the higher percentage of fixed carbon give the least smoke and best results for economy.

Central Station Heating Economical.

Inquiries made during the test regarding central heating plants and comparison of results with those of individual house heating boilers show that central heating plants are economical for the house holder and such plants partly solve the smoke problem in cities by putting many small boilers, scattered over a wide area, out of commission.

A comparison of the figures showing the rate per 1,000 pounds of condensed steam, from various central heating plants with the cost for evaporating 1,000 pounds of water, by the individual house owner shows that the house holder is fortunate who can purchase heat from a central plant at a reasonable rate.

These figures showed that the cost per 1,000 pounds of steam from central heating plants varied from 40 to 60 cents and that the cost in evaporating 1,000 pounds of water, to the house holder, with coal at $6 per ton varied from 35 to 60 cents; and with coal at $10 per ton the cost was from 59 cents to $1.09. For further details upon this point the accompanying diagram, Fig. 3, may be consulted.

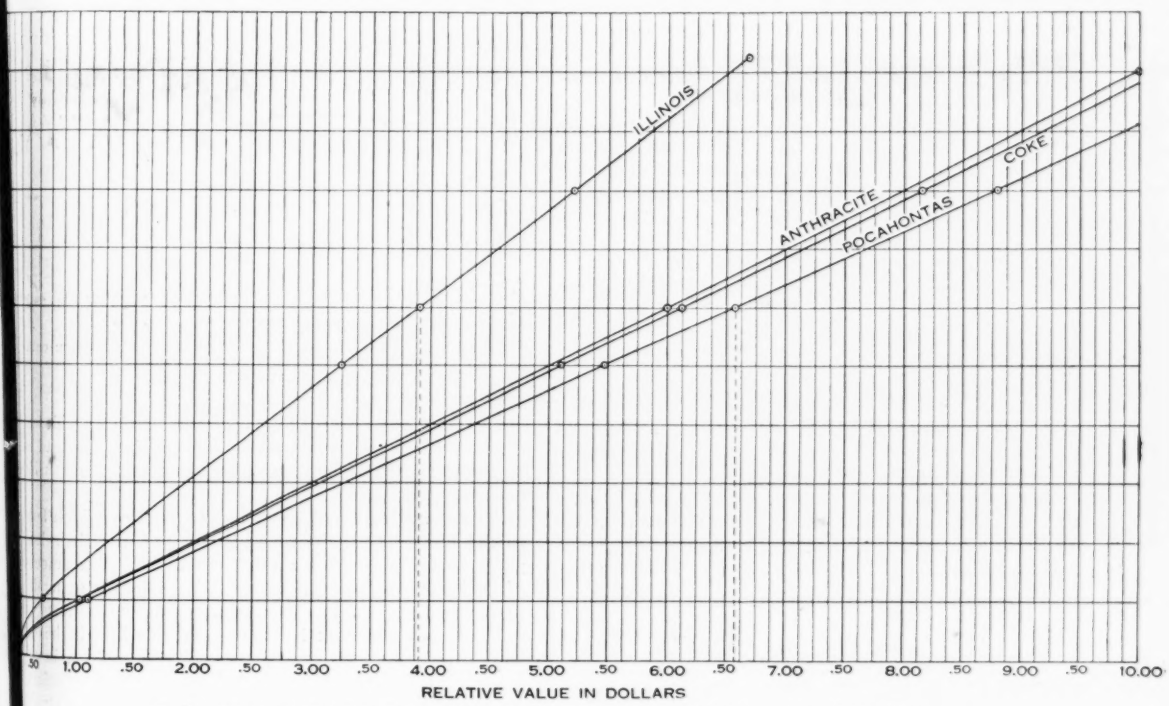

ILLINOIS
ANTHRACITE
POCAHONTAS
COKE
50 1.00 .50 2.00 .50 3.00 .50 4.00 .50 5.00 .50 6.00 .50 7.00 .50 8.00 .50 9.00 .50 10.00
RELATIVE VALUE IN DOLLARS

Fig 3. Diagram showing the relative value in dollars of fuels for house heating boilers.

PURE AIR MADE TO ORDER.

A man of science in Berlin has taken to running ordinary air through a machine to make of it better stuff to breathe. Not satisfied that the atmosphere which nature furnishes for the purpose is all that it should be, he has undertaken to make of it a more acceptable and useful and valuable human asset. The only queer thing about the matter, too, is that he is accomplishing it, Technical World says.

Everybody knows that oxygen in our air is a good thing. It is possible to get too much of it, like other good things, but there is comparatively little suffering caused among members of the human race, just at this stage of the world's life, by a superabundance of this particular desirable. In fact, sometimes it seems as if many of us were trying to see how little of it we can assimilate without actual asphyxiation instead of enjoying a full measure as one of the luxuries of existence. But it isn't always our own fault, it seems, and that's why the Berliner, Dr. Fischer by name, a member of the faculty of the famous Berlin University, has produced his invention.

Cutting and Calking Soil Pipe

By Phoenix

Take pride in your craft, my boy, for if rightly mastered, it will give you the chance of **earning better wages** than most any other trade in the country.

Remember also that there are **always places** for foremen, estimators, superintendents, etc., **who know the business,** and that the **best of those** are men who have had the benefit of practical experience and who have been wise enough to combine the same with technical information. It is up to you to grow wise enough to fill some of these positions in future years. Take notice that the bigoted and ignorant plumber who never improves, has nearly had his day, and tumble to the fact that in about ten years more this class of plumbers will have become a memory only; or else they will be working, or perhaps running, a bum shop in some country town that has no plumbing laws.

The improvements in various appliances and the quicker and better methods of building are bringing about an advancement in plumbing installation. This combination together with the strong fight for reliable goods and first class work is giving better results and better material to the consumers.

Therefore **try to keep up with the times.**

Put in one or two evenings each week finding out what is doing in the craft in that part of the world **outside of your town. Read a few books or papers that relate to the trade.** They will not hurt you and the chances are that they may do you good.

You will find that this twentieth century is going to be the greatest period of advancement, along all lines, that the world has ever seen, and that **dreamers and mullet heads are not wanted.**

One good idea, today, used intelligently, will bring a thousand times better results, in every way, than the application of a whole lifetime of brute force.

Customs and ideas that were thought good practice thirty or forty years ago, now belong to what might be called the **"Dark Ages" of the plumbing business.**

This teaches how to calk soil pipe, cut soil pipe, and how to treat the stack

The man who has failed to keep pace with the times is simply thrown into the discard.

The notion, in years gone by, that when a man became clever enough to wipe a joint he was a plumber, has been exploded.

Modern appliances have brought about a vastly different system of work. Start an old timer (who has not kept informed) upon a modern bath room and he would be lost. He might be able to start the work, **if some person told him the meaning** of the details of sanitary science that applied and which the law required.

A great number of vent stacks, drains, etc., are of cast iron, hub and spigot, pipe with lead calked joints.

The lengths of cast iron pipe are generally connected together as shown in Fig. 7 which illustrates a somewhat different method of calking in the lead.

The finished points of the calking chisels are shown by the drawings marked X and Y and the condition of the joint, when finished is also shown, This gives a

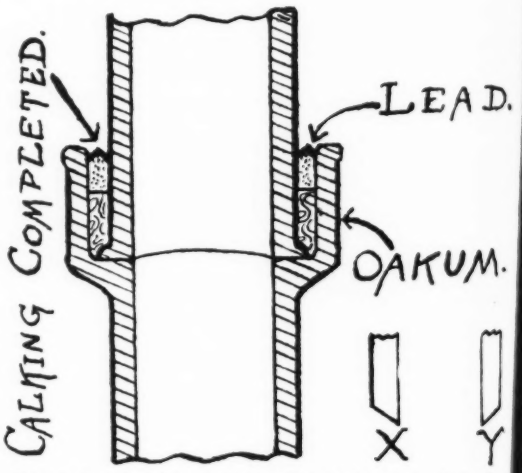


Figure 7. Showing condition of lead in joint when calking is completed.

firmer joint than the ordinary method as both sides of the lead are forced against the iron causing the lead to hug tighter. You simply calk in the outside and inside seams separately.

Do not neglect to skim off the impurities which float to the top of the molten lead in the pot, for clean lead pours better and makes a more solid joint. The amount of lead used in joints of various size depends generally upon the fancy of the journeyman and the honesty of the contractor, but at least one and one-half inches of lead should go into each joint. You can do a better job and make a firmer joint if you roll the oakum into a rather firm rope, driving it down solidly strand by strand, and not all at the same time. If you try to drive the whole bunch in at once your yarning tool is liable to cut through the oakum leaving a space for the hot lead to drizzle down the inside of the pipe, or to form a puddle just back of the hub.

In either case this will form an obstruction sure to make trouble later on.

When you pour the joint fill it full the first time.

Some plumbers think they get a tighter joint by making two pourings, but this is a mistake as the lead never unites. Break open a joint so made and you will find two separate rings of lead.

The only place where two pourings to a joint should be made is on a piece of cut pipe which might be very thin, leaving an unusually large space to fill with lead. In such a joint you may not be able to calk in the oakum without driving it through. If this is the case first drive in the oakum just firmly enough to hold the lead from running through and then make a light

pouring. Drive this down solidly when cold and then make a second pouring.

The lead in a joint should not be calked until the joint is cold.

If driven home when hot, the joint will contract a little when it cools and probably show a leak on the test, requiring further calking to make it tight.

When you are hammering in the lead remember that you are expanding it and every blow of your hammer adds to the force with which the lead presses against the iron. You may have a light "snip," and there you are—a broken hub. The next time you will know better, especially if the boss takes it out of your wages.

In case you have to pour a joint on horizontal pipe, calk in the oakum as previously described **after having first thoroughly cleaned out all the dirt and moisture from the joint.** Now put on the asbestos runner used for the purpose, or stop up the edges with rather stiff putty or clay. In case you use clay or putty do not force it against the edges too hard or you will push it too far into the joint and not get a complete ring of lead around the pipe. Leave a small opening on top shaped like the letter **U** having the points resting against the edge of the hub. Into this hole pour your **extra hot** lead until the hole is full and then quickly remove the runner clay or putty and see if you got a full joint. If not, pull the joint apart at once before it cools and do the job over, rather than try to cobble it up by a second pouring or calking in cold lead.

In cutting soil pipe into the different lengths required on any job, stick to the hammer and cold chisel. Some people on large jobs when a vise is handy will use a pipe cutter for this purpose. If your pipe is thin on one side, as it is very apt to be, you will probably crush the pipe or perhaps split the end and destroy more pipe than the value of the time you would save by not using the hammer and chisel.

It is not a long job to cut off a piece of pipe after you have the hang of it and know just where to strike and how much force to use, and this particular sense of muscular fitness will come only with practice. Draw a chalk line around the pipe at the point where it is desired to make the cut.

Lay the pipe upon the ground or floor and directly under the chalk line place a board or block. Now roll the pipe following your chalk-line all around the pipe with hammer and cold chisel until you have completed a circle. In going around the pipe the second time strike much heavier blows, especially where the wall is thicker. With practice, you can tell by the sound, when striking, just where the thick and thin places are in the pipe.

If the stack has been run through any room in the house and is to remain exposed, it may be desirable to paint it, or possibly cover it with a coating of bronze.

Should you bronze or paint the cast iron pipe as it comes from the factory, in about 48 hours you will have a most beautifully decorated **thing** on your hands with as many colors on it as Joseph's coat. The tar strikes through and produces rainbow colors and unpleasant remarks from the owner upon general appearances, and ignorant workmen.

Before bronzing or painting, cover the pipe with a couple of coats of shellac, and when it is **thoroughly dry** apply the paint or bronze and your job will pass inspection.

Questions and Answers

THE PROPER CARE OF FILES.

New Orleans, La.—To the Editor of "Domestic Engineering." Sir:—Will you tell me if there is any way to fix up the files used in the shop so that they will last longer? J. H.

Answer.

1. Keep your files in one till so arranged that each file shall not rub against the other. Avoid throwing them loosely among the other tools in the chest where they will be jammed and broken and the cutting edges dulled by being slammed against the rest of the tools.

2. When you are done with it, always clean each file thoroughly with a stiff wire brush before putting it in the chest.

3. Use judgment in selecting the proper file for the work to be done. A new file should not be used on a very narrow surface, nor upon rough, scaly cast iron surfaces, as the teeth of the file will be dulled by such usage. On narrow work the teeth of a new file will bite in so deeply that they may scratch the work, or be injured. A file that has been partially worn will give much better service in both cases mentioned.

4. Use your files properly when working, putting the force on the **push,** and never apply force when you draw the file toward you. This one mistake in using probably ruins most files.

IN DIFFICULTY WITH A STEAM SEPARATOR.

Milwaukee, Wis.—To the Editor of "Domestic Engineering." Sir:—I would like to ask you to give me any information you can as to how to overcome a little difficulty I have had with a steam separator. I have installed it in a power plant for the purpose of extracting the cylinder oil from the exhaust steam so that the drippings from the radiation and exhaust head can be pumped back into the boiler. I have installed this separator according to instructions and a blue print furnished by the manufacturers, but the separator does not take out more than a small part of the oil, the larger part of it passing through and coming back from the exhaust head.

The engine is a "Twin City" Corliss 12x36", running about 102 revolutions per minute, and the separator is placed between engine and heater.

R. E. W.

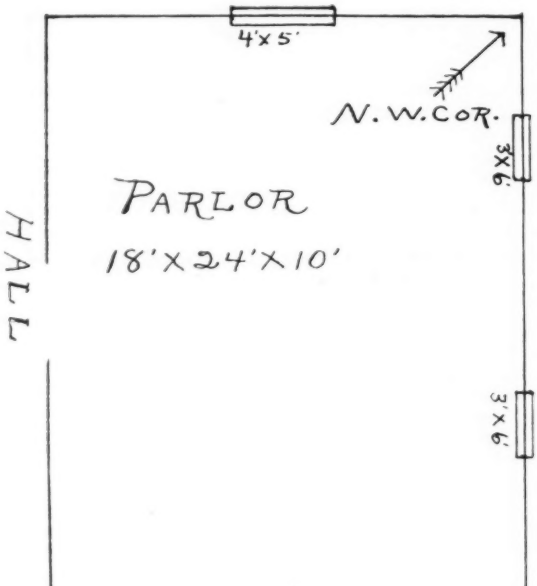
Answer.

When it is desired that a separator free the steam from water only, the separator is placed on the main pipe leading from boiler to engine and as close as possible to the engine.

If it is desired to remove the grease and dirt from exhaust steam before condensing and feeding it back to the boiler, the separator should be placed in the exhaust pipe leading from the engine to the condenser. It might also be possible that, through a mistake, this separator was connected wrong end to.

HOW MUCH RADIATION SHOULD THIS ROOM CONTAIN?

Newark, N. J.—To the Editor of "Domestic Engineering." Sir:—In the sketch given of a parlor I have used the 2-20-200 rule, finding that there are 420 feet of exposed wall, 56 feet of glass surface and 4,320 feet cubical contents, and this calls for 68 feet



This sketch shows dimensions of room in question.

of radiation. Another rule recommended to me by a large manufacturer is to divide the cubical contents by 50 for steam and 30 for hot water, and this would give about 86 feet of radiation for the room. Which is right?

Answer.

1. The old rule used by many fitters still in the business is to figure 1 foot of radiation for every 40 cubic feet of space. This would give 108 feet of radiation for the room, and there would be no question but what the room would be warm with that amount.

2. In using Carpenter's "55ths" rule for steam,

$$\frac{C.C.}{2/55} + G + \frac{\text{Exp. Wall} (-\text{Glass})}{4} \div 4 = \text{Steam radiation}$$

the 2/55ths basis would give about 76¾ feet, which the writer does not believe sufficient for New Jersey climate.

Using the same rule and substituting 3/55 in the formula the result is 96¾ feet of radiation, which would probably be sufficient.

3. In estimating this room by "Thompson's Rule," published in "Domestic Engineering" on January 2, 1909, this room would call for 86 feet of radiation. On a northwest exposure at least 10% should be added, which would give 94.6 feet for the room. In all climates considerable judgment must be used in figuring any rule, as there are so many conditions to be taken into consideration. It is better to make the mistake of having too much radiation rather than too little.

WHAT IS THE TROUBLE WITH THIS WIPING SOLDER?

Brooklyn, N. Y.—To the Editor of "Domestic Engineering." Sir: Please let me know whether or not there is something that the plumbers put in wiping solder that makes it so fine, or is there any grease that causes it? X. Z.

Answer.

Perhaps you have not been using wiping solder made up in the correct proportion, which is three parts lead to two parts tin. Many plumbers start with half and half and stick in enough lead until the solder wipes right. The best way is to weigh out your material in the proper proportions before melting it, and even then, with old lead which has had acid used upon it, or lead which has stood near acid, your joints will not be a success.

WHAT MAKES THIS JOB HAMMER?

Boston, Mass.—To the Editor of "Domestic Engineering." Sir:—Can you tell me what to do with an obstinate case of water hammer? It occurs in the house of one of my best customers and so far has baffled all my efforts to remedy. The house plumbing is comprised of 3 water closets, 2 low-down and 1 high tank, 2 baths, 7 lavatories, 2 sinks, 1 three-part wash tray, 1 instantaneous water heater, 1 gas heater, 1 40-gallon range boiler. The faucets are all Fuller except in kitchen and laundry, which are compression. House piped with ¾" galvanized pipe. Hot water for house and garage. J. S. B.

Answer.

Try opening the compression faucets in the kitchen and laundry and notice when so doing if you get any hammering. After this, try opening and closing the Fuller faucets at various points, and you may then find that the job hammers. If you have not used air chambers in connection with the Fuller faucets to cushion the shocks, that is one reason for the hammering, and by using them the difficulty will probably be removed. If this hammering noise is in the range boiler, it is undoubtedly due to the steam which is formed in this particular waterback, which may be partially stopped up; or the fire may be too hot for the quantity of water used. If it is a cast iron waterback and you locate the hammer as proceeding from this cause, I would make sure the waterback was not stopped up first. If not, I would then either put in a coil (which would give less fire surface), or else smear a light coat of fireclay over the waterback, thus reducing its ability to absorb so much heat and generate steam. Sometimes a sound very similar to hammering is caused by the dancing of a valve on its seat. This hammering is the result of the checking and starting momentarily of the column of water, and the noise is similar to the sound of a riveting hammer run by compressed air and heard from a moderate distance.

Wholesale Plumbing

CENTRAL SUPPLY ASSOCIATION MEETS IN CHICAGO.

The Central Supply Association held its regular mid-winter meeting at the Victoria Hotel in Chicago on Wednesday, February 24. The meeting was well attended, matters of interest to the trade were discussed, and the following four companies were admitted to membership:

Cameron-Schroth-Cameron Company, 189 Michigan street, Chicago.

Central Closet Manufacturing Company, Holland, Mich.

The Dearborn Brass Company, Cedar Rapids, Ia.

Kimball-Eisenberg Company, 216 Jefferson avenue, Detroit, Mich.

Enameled Steel Tank Company, Kalamazoo, Mich.

The following concerns were represented at the meeting as indicated:

Barberton, Ohio.—Pittsburg Valve & Fittings Co. by L. B. Jenks and C. L. Selkregg.

Canton, Ohio.—J. H. McLain Co. by P. L. McLain.

Cedar Rapids, Iowa.—Cedar Rapids Pump Co. by A. E. Mulford; Dearborn Brass Co. by E. S. Seeley.

Chattanooga, Tenn.—The Cahill Iron Works by J. W. Gardner and H. Verbeek.

Chicago, Ill.—W. D. Allen Mfg. Co.; American Radiator Co. by J. A. Sheahan; Crane Co. by H. M. Haldeman, W. T. Cotter and C. D. Little; John Davis Company by John D. Hibbard; Stephen Deschauer; Federal-Huber Co. by A. D. Sanders, Jr.; Findeisen & Kropf Mfg. Co. by O. F. Kropf and Geo. I. Blowers; Henion & Hubbell by W. B. Henion; Illinois Malleable Iron Co. by J. R. Steneck; Kellogg-Mackay Co. by C. V. Kellogg; Mark Mfg. Co. by B. T. Bechtel, J. S. Dibley, C. W. Larson and C. E. Van Court; J. L. Mott Iron Works by J. W. McAuliffe and J. W. Watson; National Plumbing & Heating Supply Co. by E. C. Garrity; The Nye Tool & Machine Works; Republic Mfg. Co. by W. A. Ratcliffe; Street & Kent Mfg. Co. by C. D. Street and W. J. Street; Weil Bros. by I. Weil; Weir & Craig Mfg. Co. by James Weir; Whitney & Ford by H. E. Whitney; Wilks Mfg. Co. by E. W. Sedgwick; E. W. Blatchford Co. by Edw. Blatchford; National Tube Co. by L. R. Phillips; Standard Sanitary Mfg. Co. by W. S. Verity, Jr.

Cincinnati, Ohio.—Merkel Bros. by A. A. Merkel; Murdock Mfg. & Supply Co.; William Powell Co.

Cleveland, Ohio.—Kennedy Company by W. G. Callow; Monarch Brass Co. by A. S. Deutsch; Standard Mfg. Co. by C. A. Carothers.

Columbus, Ohio.—Columbus Supply Co.; Engineers' & Plumbers' Supply Co. by Wm. G. Westwater; Scioto Valley Supply Co. by L. C. Huesmann.

Davenport, Iowa.—Midland Supply Co. by Fred Wernentan, Jr.

Dayton, Ohio.—Dayton Supply Co.

Denver, Colo.—Atkins-McGee Supply Co..

Detroit, Mich.—A. D. Mfg. Co.; Detroit Range Boiler Co. by E. W. Stoddard; Diamond Mfg. Co. by D. B. Lee; Ideal Manufacturing Co. by Jas. P. Feely, Jr.; Murray W. Sales Co. by Murray W. Sales; United States Heater Co. by E. A. Stark; Walker Mfg. & Supply Co. by John Walker; The Allyne Brass Foundry Co. by L. Howard Swander.

Dubuque, Iowa.—A. Y. McDonald & Morrison Mfg. Co. by A. Y. McDonald; Morrison & Kretschmer Mfg. Co. by Fred A. Kretschmer.

Evansville, Ind.—Never-Split Seat Co. by J. R. Goodwin.

Conshohocken, Pa.—John Wood Mfg. Co. by Herbert B. Hallett.

Fort Wayne, Ind.—Knott-Van Arnam Mfg. Co.; The P. & H. Supply Co. by E. M. Puckett.

Fort Worth, Texas.—The Gamer Co.

Grand Rapids, Mich.—Ferguson Supply Co., Ltd.; Grand Rapids Supply Co. by R. B. Kellogg; Wolverine Brass Works.

Green Bay, Wis.—Murphy Supply Co.

Holland, Mich.—Central Closet Mfg. Co. by D. W. Barry and Geo. A. Harper.

Indianapolis, Ind.—Central Supply Co. by L. C. Huesmann; Knight & Jillson Co. by Henry M. Stackhouse; Shirley Radiator & Fdy. Co. by J. H. O'Brien.

Kalamazoo, Mich.—Enameled Steel Tank Co. by Carl H. Zimermann; Quinn Mfg. Co.

Kansas City, Mo.—U. S. Water & Steam Supply Co. by H. S. Ferguson and G. Schumacher.

Kenosha, Wis.—Frost Mfg. Co. by W. J. Frost.

Kokomo, Ind.—Columbia Pottery & Mfg. Co; Great Western Pottery Co. by F. W. Conradt and E. Willard.

Long Island City, N. Y.—Marks Lissberger & Son, Inc., by M. L. Lissberger.

La Crosse, Wis.—W. A. Roosevelt Co. by John P. Fetter.

Louisville, Ky.—Ahrens & Ott Mfg. Co. by S. H. Moon; Laib Co. by Geo. H. Laib.

Mannington, W. Va.—Homewood Pottery Co. by A. S. Frampton.

Mansfield, Ohio.—Barnes Mfg. Co. by T. R. Barnes; Ohio Brass Company by W. T. Jameson.

Milwaukee, Wis.—Dengel Mfg. Co. by F. R. Dengel; B. Hoffman Mfg. Co. by Aug. Seelman; Hoffman & Billings Mfg. Co. by E. F. Niedecken; Robert Rom Co. by G. S. Waite; Rundle-Spence Mfg. Co. by E. R. Spence.

Minneapolis, Minn.—Central Supply Co. by P. J. Frey.

Muncie, Ind.—Geo. Keiser & Co.

New York, N. Y.—American Sanitary Works by B. O. Tilden; Central Foundry Co. by C. C. Todd; McCrum-Howell Co. by H. T. Gates.

Noblesville, Ind.—Union Sanitary Mfg. Co. by E. V. Brigham.

Omaha, Neb.—United States Supply Co. by J. B. Rahm.

Peoria, Ill.—Kinsey & Mahler Co. by Warren Kinsey; Nailon Bros. Co.

Pittsburg, Pa.—Duquesne Sanitary Co.; Fort Pitt Supply Co. by James M. Young; Iron City Sanitary Mfg. Co. by J. A. Kelly; Pittsburg Supply Co. by O. F. Felix; Pittsburg Valve & Fittings Co. by L. M. Moore; Wm. B. Scaife & Sons; Spang, Chalfant & Co. by J. D. Hardcastle, F. M. Minninger and J. D. Purdy,

Jr.; United States Sanitary Mfg. Co. by A. H. Cline, Jr., and John J. Plath.

Quincy, Ill.—Modern Iron Works by E. S. Walcott.

Rockford, Ill.—Rockford Brass Works by D. E. Trahern.

St. Louis, Mo.—American Foundry & Mfg. Co.; John C. Kupferle Foundry Co.; N. O. Nelson Mfg. Co. by Wm. Ivy and A. B. Pierce; Rumsey & Sikemeier Co. by W. C. Rumsey.

St. Paul, Minn.—Crane & Ordway Co.; Union Brass & Metal Mfg. Co. by P. J. Frey; Western Supply Co. by J. L. Sullwold.

Steubenville, Ohio.—La Belle Iron Works by J. H. P. Wharton.

Sturgis, Mich.—Miller-Hubbard Mfg. Co. by C. A. Miller.

Terre Haute, Ind.—Frank Prox Co. by H. C. Prox and W. B. Blowers.

Toledo, Ohio.—American Plumbers' Supply Co.

Union City, Ind.—Knapp Supply Co. by L. C. Huesmann.

Waukegan, Ill.—Northern Brass Mfg. Co. by C. S. Johnson.

Wheeling, W. Va.—Trimble & Lutz Supply Co. by H. A. Ebbert.

Youngstown, Ohio.—Youngstown Sheet & Tube Co. by Geo. E. Day.

Trenton, N. J.—Potteries Selling Co. by W. C. Matlack; Sanitary Earthenware Specialty Co. by John T. Moore.

A joint conference was held between the Executive Committee of the Central Supply Association and a Committee of the American Society of Inspectors and Plumbing and Sanitary Engineers, the latter consisting of the following gentlemen: William G. Williamson, Jno. K. Allen, Edward Quinn, and the president of the society, Charles B. Ball, Chief Sanitary Inspector, of Chicago. The special topic under consideration was: **"Establishing Standards of Soil Pipe and Fittings."** The following gentlemen were appointed in behalf of the Central Supply Association to consider the subject: John F. Wolff, William Ivy, G. Schumacher and Charles R. Schmidt.

Western Specialty Company, of 1105 East Twelfth street, Kansas City, Mo., is a newcomer in the field of plumbing specialties. W. B. Houston is manager of the business.

Orange Supply Company, of East Orange, N. J., has been incorporated with a capital of $125,000 to manufacture plumbing specialties. The incorporators are Chas. R. Meehan and Peter Broderson of East Orange; Thos. J. Lee, Jr., Newark, N. J.

The Hempstead Brass Company, of Hempstead, L. I., N. Y., which was recently organized, has erected a concrete brass foundry 28x30 feet, and fitted up a building 20x40 feet, two stories high, for its finishing department, store rooms, etc. This company has succeeded Nichols Bros. Manufacturing Company of that place in the manufacture of ball cocks, and it also recently acquired the business of the Greenfield Faucet Company, of Springfield, Mass., and will continue the manufacture of its faucet and basin cocks. The company has acquired a large plat of ground adjoining its new brass foundry on which it is its intention to erect a factory building at a later date.

Mexico lies directly upon our southern border and has an area of some three quarters of a million square miles, or more than thirteen times the size of the state of Illinois, and has a population of about 15,000,000 people. Two great trunk lines of railroad connect this country with the United States. Our neighbor is merely upon the threshold of development and affords vast opportunities as a market for our goods, and for men of brains and activity. Also for capital which the United States can furnish to develop the immense resources lying practically dormant.

Wholesale Heating

The Beler Water Heater Company, of Pittsburg, Pa., has moved from 627 Second avenue to 311 Water street.

The Pacific Suction Cleaner Company of San Francisco, Cal., has been incorporated with a capital stock of $100,000.

The executive offices of Abendroth Bros., of Port Chester, N. Y., have been moved to their New York store at Pearl and Beekman streets, New York City.

Frank W. Mills has withdrawn from Abendroth Bros. and associated himself with his brother W. A., as a member of the Globe Foundry Company of Port Chester, N. Y.

The Akron Automatic Hot Water Heating Company, of Akron, O., has been incorporated with a capital of $10,000. Chas. A. Lay is interested in this new venture.

The Pilot Heater Company, of Lorain, O., has been incorporated with a capital of $100,000 to manufacture heating goods. H. William Pilot is at the head of the enterprise.

Crane Co., of Chicago, has just contracted for the steel work on its new building, to be erected in San Francisco. The excavations for this structure have been completed and work on the structure will now be rushed. The building will be ready for occupancy early next fall, according to the present plans.

A plumbing and steam supply baseball league is imminent in New York. Joseph M. Norton, manager of the Arcony Baseball Club of that city is endeavoring to arrange a league and a series of games for the coming season between various manufacturing and supply houses in New York City, among whom teams may be expected from Crane Co., Richardson & Boynton Co., E. F. Keating, Cornell & Underhill, The Fairbanks Co., John Simmons Co., Baker, Smith & Co., Gillis & Geoghegan, and G. A. Suter & Co. Other firms are also expected to arrange and join the League, and individuals connected with the trade are also invited to identify themselves with the movement. Wm. R. Shannon, New York representative of "Domestic Engineering," has been signed as umpire.

The Williamsport Radiator Company, of Williamsport, Pa., has opened a branch sales office at 99 Beekman street, New York, where the company's products have been placed on exhibition and a neat suite of offices arranged. The office is in charge of Fred J. Len-

nox, as manager and L. P. Grant as assistant. New York and adjacent territory will be covered from this office.

The salesmen and office men of the New York office of the American Radiator Company have recently organized a baseball nine to play a series of games with the different Plumbing and Steam Supply houses throughout that city. They have already secured a diamond on the parade ground in Van Cortlandt Park and will shortly be equipped with uniforms. Every Saturday afternoon will find them in some one of the nearby suburbs undergoing the usual drill work preparatory to the selection of a good team. The organization is composed of the following men: A. C. Downer, D. W. Haire, C. G. Chamberlain, C. V. Skoog, R. L. Doyle, Jas. A. Swan, F. A. Benton, R. W. Gunther, A. J. Marois, H. C. Marschalk, E. J. Musgrave, C. R. Buckland, W. A. Russell, J. E. Dobbs, M. Dalton, J. M. Norton, H. B. Wolverton, W. Johnson, W. Kenney, J. E. Fitzpatrick, J. Cribbin, J. N. Quinlan and W. Hunter. J. M. Norton, 104 West 42nd street, New York City, would like to hear from plumbing and heating supply houses for the purpose of arranging a series of games during the coming season.

Group of salesmen at the annual convention of the Ohio State Association of Master Plumbers held last week at Springfield, O.

Steam and Mill Supplies

The Mechanics' Supply Company, of Pittsburg, Pa., now located at 535 Third avenue, has taken a lease on the business property at 105 Market street, and as soon as alterations and improvements are made to the new home of the company, the offices, sales rooms and ware rooms will be removed to the latter location. The new location is a modern three-story structure, all of which will be occupied by the company. This change brings one more large concern into the very heart of the plumbing, heating, mine and mill supply district. The company expects to be able to open up the new store in about a month.

Plans are already being drawn by H. J. Esser, a Milwaukee architect, for a $150,000 factory and an office building at Milwaukee, Wis., for the H. W. Johns-Manville Covering Company to replace the building destroyed by fire on February 13. The new building will be of fireproof construction, mill design,

six stories high, 100x150 feet in dimensions. The office building will be of 50x150 feet dimensions and the same height and of the same construction as the factory. The company is temporarily housed in the Public Service building, while the big Menomonee valley plant in Milwaukee will take care of the mechanical end.

Metal Market

New York Metal Market, February 23.

Copper, Prime Lake	$13.00
Copper, Lake, Arsenical brands	13.00
Copper, Electrolytic	13.87½
Antimony, Cookson's	8.00
Lead	4.00
Spelter	4.85
Straits Tin	29.00

Chicago Iron Market, February 25.

Southern, No. 2 Foundry	$17.35
Northern, No. 2 Foundry	17.00
Lake Superior Charcoal	19.50-20.00

February 25, 1909:

Foundry iron was the same price as the week previous
$2.00 less per ton than the year previous
Copper was ¾c less a lb. than the month previous
⅛c more a lb. than the year previous

IRON INDUSTRY IN STATE OF CONFUSION.

New York, N. Y.—The complete reversal of the selling policy of the steel corporation has thrown the entire trade into confusion and buyers and sellers have been groping in the dark, says The Iron Age. Each interest is endeavoring to find its bearings. There are some indications of a friendly spirit among some of the leading interests so that the term price war should not be indiscriminately used. It is only in a few lines of mill products that prices have been openly made and some of the published reports regarding other lines are undoubtedly exaggerated. The leading pipe mills have issued new discounts on merchant pipe of 80 off on three-fourths to six-inch with the usual one point on the base and 5 per cent differential to leading jobbers. The new discounts show reductions ranging from $6 to $10 a ton. There is little disposition to force the selling of billets, but it is probable that the price will be made $22 Pittsburg with $23 for tin bars. There is no truth in the reports that the price of steel rails has been reduced from $28 to $25. The opinion is expressed, however, that they may be affected by the struggle. Steel bars are definitely and openly down to $1.20, although it must be noted that some leading sellers decline to commit themselves beyond July 1. So far as we can learn no prices lower than $1.30 Pittsburg have yet been named by anybody on structural material and on plates. The reports that $1.24 is being done cannot be confirmed.

Cleveland, O.—The declaration of the open market in steel prices naturally has caused considerable confusion, according to The Iron Trade Review. The spirit of co-operation developed during the fifteen months' campaign for the maintenance of prices is still a potent factor, and while it is probable that bottom in quotations has not been reached, there is a tendency among the leading interests to co-operate. This is shown in the fact that many companies are naming about the same prices and that there is a general agreement not to abandon extras for rolling other than base sizes. Present confusion probably is due as much to the tendency to abandon Pittsburg as the sole basing point as it is to changes in prices. The time honored custom of naming prices f. o. b. Pittsburg plus freight to other parts of the country is doomed because of the relatively decreased importance of Pittsburg as a mining center.

New York, N. Y.—There is no copper market here, says "The American Metal Market." Certain large buyers are working to get the market down to a figure at which they can take on a round lot of metal, with a view of making a profit and a short upward movement, but producers are not interested in such buyers. They are patiently waiting for developments from the consuming interest, and realizing the conditions created by recent events, are quite prepared to have to wait for a while until the general business situation has got over the shock of the reversal of the price holding policy on the part of the United States Steel Corporation. It is interesting to note that the excitement and demoralization the press speaks about is all in the newspapers—there is none in the iron and steel trade. There the adjustments are being made in a most orderly manner. Copper will benefit from the present developments in increased consumption.

Association News

BOARD OF DIRECTORS OF NATIONAL ASSOCIATION OF MASTER PLUMBERS AT MIDYEAR MEETING IN CHICAGO

Decides on Detroit as Next Convention City and Fixes Date at June 22, 23 and 24, 1909.

Chicago, Ill.—The Board of Directors of the National Association of Master Plumbers held its annual midyear meeting at the Auditorium Annex in this city Tuesday, Wednesday and Thursday, February 23-25, at which regular routine business was transacted and matters of importance to the trade were considered.

It was decided after careful consideration to hold the next annual convention of the National Association in Detroit, Mich., on Tuesday, Wednesday and Thursday, June 22, 23 and 24, 1909.

After a joint conference on "Standardization of Soil Pipe and Fittings" between the Board of Directors and a committee from the American Society of Inspectors of Plumbing and Sanitary Engineers, the latter consisting of W. G. Williamson, of Detroit; Jno. K. Allen, of Chicago; Edw. Quinn, of St. Louis; and Chas. B. Ball, president of the society and Chief Sanitary Inspector, of Chicago, it was decided to authorize President W. H. Halsey, of the National Association of Master Plumbers, to appoint a committee on "Standardization of Soil Pipe and Fittings Only" to confer with the committee of the American Society of Inspectors of Plumbing and Sanitary Engineers.

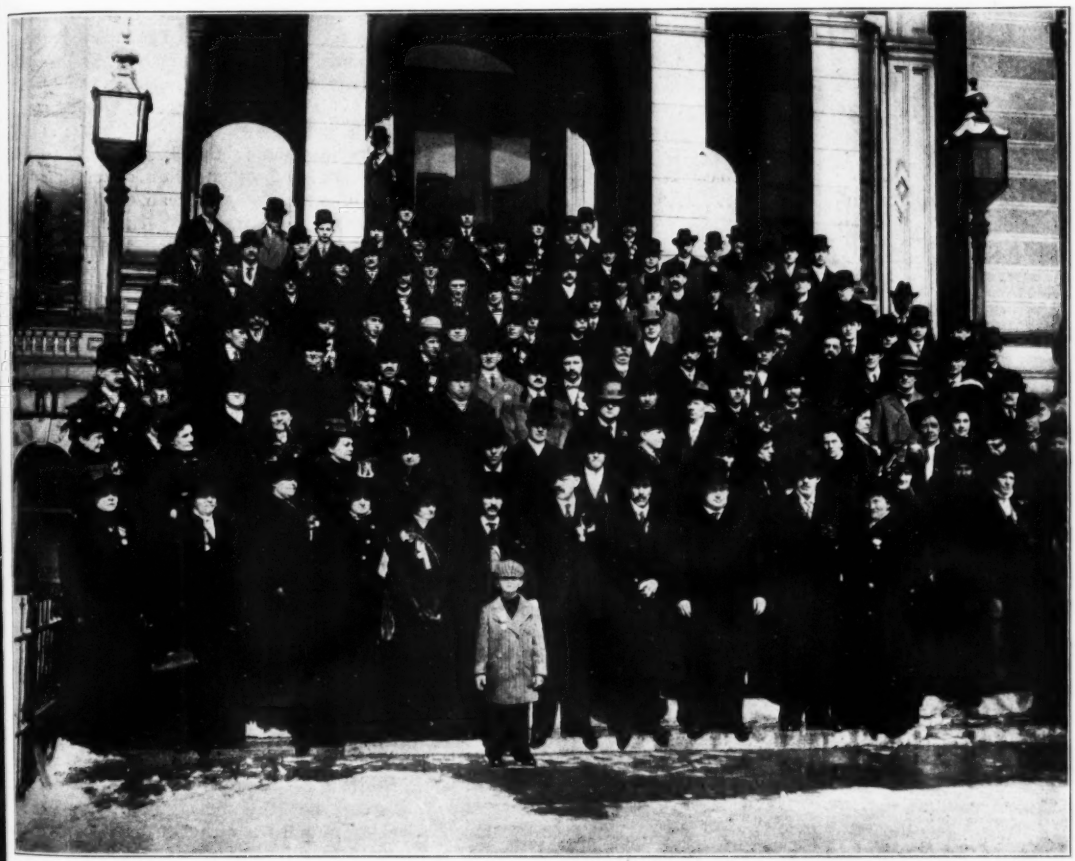
It was decided to authorize David Craig to publish at once the valuable report he as chairman of the

sanitary committee submitted to the Association at its annual convention in Boston last summer on "The Character of Air in House Drains".

In regard to the **Use of the Rubber Stamp** it was resolved that:

"Inasmuch as it has come to the knowledge of the Board that the manufacturers are promulgating a rule that will probably meet all requirements as to a guarantee on material, it is recommended that the use of the rubber stamp on orders be discontinued until such time as we can learn of the plan of guaranteed material now being considered by the manufacturers."

The meeting of the board was well attended, all the members being present with the exception of John Trainor, of Baltimore, who was prevented from attending by a serious case of illness in his family.



Master Plumbers and Ladies at the annual convention of the Ohio State Association, held last week at Springfield, O.

Beverly, Mass.—A meeting of the master plumbers of Beverly was held at the Board of Trade rooms on the evening of Thursday, February 18, for the purpose of discussing the matter of organization. R. Robertson was chairman of the meeting and there were present as guests and speakers, State President James W. Kennelly, of Springfield; State Vice-President A. F. Curtin, of Medford; State Secretary John P. Drury, of Boston; former National President David Craig, of Boston; and E. C. Kelly, of Boston. On invitation fourteen master plumbers of Beverly and vicinity signed to form an organization and another meeting was called for the purpose of forming an association and electing officers. Much interest was manifested and a flourishing organization is anticipated. Those who signified their intention of joining the new organization are: F. W. Williamson, R. Robertson Co., Pickett & Goodwin, F. S. Ingersoll, W. C. Flavin, D. T. Beaton, E. S. Bradley, C. S. Knapp, Wilber J. Pierce, H. L. Burnham, J. Claflin and R. S. Gladding.

NEWARK MASTER PLUMBERS ENJOY ANNUAL BANQUET.

Newark, N. J.—On Thursday evening, February 18, the annual banquet and ladies' night of the Master Plumbers' Association of this city was celebrated at "Achtel Stetter's," 844 Broad street. The occasion was marked by probably the largest attendance ever seen at any of the association's social gatherings. The banquet hall and tables were appropriately decorated and every feature of the evening's program was ad-

mirably arranged and carried out. It was nearly 7:30 o'clock when the merry throng sat down to a long menu of good things prepared by the hands of Newark's star chef. Some of the most delicious viands and choicest wines together with the pleasing strains of the orchestra with an occasional song by artists in attendance, kept the merry makers at the table for two hours.

A. Selden Walker, who represented the National Association of Master Plumbers, acted as toastmaster, and acquitted himself in an admirable manner. After a few remarks Mr. Walker in turn called upon Louis Maier, president of the association; Henry F. Baillet, secretary, and Edson Garrabrant, president of the State Association.

Mr. Maier's remarks on "Association" were gratefully received and no doubt were deeply imbedded in the memory of everyone present. Mr. Baillet had a number of letters to read to his audience. He had one from National President Halsey and another from President Roosevelt (?).

A novel menu and program was distributed as a souvenir of the occasion. The leaflets of which were neatly bound in a red cover, the first page containing an excellent likeness of President Maier.

Dancing was begun immediately after the dinner and continued well into the next morning. Everyone present voiced their feelings in hearty approval of the evening's program, for which credit should be given the able committee on arrangements which consisted of A. S. Walker, chairman; Walter I. Champlin, secretary; F. J. Sturn, treasurer; Ira Budd, Robert Berla, and Louis Maier.

There was also a lady reception committee in attendance. This was composed of Mrs. A. Selden Walker, Mrs. Ira Budd, Mrs. Robert Berla, Mrs. F. J. Sturn and Mrs. H. F. Baillet.

"Touching the Old Man." Julian G. Smith, of the Sanitary Mfg. Company, of Hamilton, O., and his son, Russell Smith. From photograph taken at Springfield, O., at the recent convention of the Ohio State Association of Master Plumbers.

SECOND ANNUAL BALL OF THE MASTER PLUMBERS' NORTH SHORE LEAGUE.

Evanston, Ill.—One of the most delightful and eagerly anticipated events of the season took place Wednesday evening, February 17, at Auditorium Hall, 621 Davis street, in this city, where the North Shore League of Master Plumbers held its second annual ball, which was opened at 9:30 with the grand march led by President and Mrs. J. J. Cahill to the delightful music furnished by Burns Orchestra from Chicago.

The decorations were extremely pleasing and reflected much credit upon those having the matter in charge.

Several devoted students of "Hoyle" disappeared behind the cleverly draped corners of the ball room.

During the evening refreshments were served by Caterer Monroe. The careful arrangements of the committees working toward the enjoyment of the seventy couples present were crowned with success and it was with unusual regret that the dancing came to an end at 12:30, everyone feeling that the gathering had contributed much toward the happiness of all.

Among those present from Chicago were President of the State Association W. J. Lang and daughter, Secretary E. J. Benning and President C. J. Stein, both of the Chicago Association. Mr. Stein was accompanied by Mrs. Stein.

The refreshment committee comprised Mrs. James Park, Mrs. David Park, Mrs. George S. Moore, Mrs. George Beck and Mrs. J. J. Cahill.

The committee on decorations was composed of Mrs. Charles Wallace, Mrs. A. McKenna and Mrs. F. J. Luettig.

The affair, now a pleasant memory, was such an unqualified success that the ladies have in contemplation a novel feature in the way of a calico ball to take place some time next May, at which all who attend, both young and old, great and small, must appear dressed in calico, or settle by paying a suitable fine.

ANNOUNCE ENTERTAINMENT FEATURES FOR THE CONVENTION OF THE NEW YORK STATE ASSOCIATION OF MASTER PLUMBERS.

Schenectady, N. Y.—The Master Plumbers' Association of this city has arranged the following program for the entertainment of the delegates in attendance at the annual convention of the New York State Association of Master Plumbers, to be held in this city on March 8, 9 and 10:

Monday, March 8.—A trip through the plant of the American Locomotive Company.

Tuesday, March 9.—Following the afternoon session the delegates will be shown through the General

Electric Company's plant. In the evening a "star bout" with several preliminaries will be witnessed at the American Athletic Club.

Wednesday, March 10.—A vaudeville entertainment and smoker in the evening has been arranged for. There will also be good programs at the Opera House, a burlesque and several vaudeville theatres.

Flint, Mich.—The seventeenth annual convention of the Michigan State Association of Master Plumbers will be held in this city on Thursday and Friday, March 25 and 26. All the meetings will be held in the convention hall at Hotel Dresden, which will also be the headquarters of the convention.

CONVENTION DATES.

March 8 and 9, 1909—Annual convention of the **Kansas State Association of Master Plumbers,** at Kansas City, Kans. Headquarters at the Grand hotel.

March 9 and 10, 1909.—Annual convention of the **New York State Association of Master Plumbers** at Schenectady.

March 9-10, 1909.—Thirteenth annual convention of the **Indiana State Master Plumbers' Association** at Kokomo, Ind. Headquarters at the Francis Hotel.

March 25 and 26, 1909.—The seventeenth annual convention of the **Michigan State Association of Master Plumbers,** at Flint, Mich. Headquarters at Hotel Dresden.

May 5, 6 and 7, 1909.—Annual convention of the **Southern Supply and Machinery Dealers' Association,** at Chattanooga, Tenn. Headquarters at Hotel Patten.

May 12, 13 and 14, 1909.—The annual conventions of the **American Supply and Machinery Manufacturers' Association** and the **National Supply and Machinery Dealers' Association,** at Pittsburg, Pa.

May 18-19, 1909.—The fifteenth annual convention of the **Pennsylvania State Association of Master Plumbers,** at Wilkes-Barre.

June 22, 23 and 24, 1909.—The twenty-seventh annual convention of the **National Association of Master Plumbers,** at Detroit, Mich.

Plumbing Inspection

Iowa City, Ia.—One of the first results of Assistant City Engineer J. C. Watkins' trip to the convention of the American Society of Inspectors of Plumbing and Sanitary Engineers, at Omaha, last week will be the revision of the plumbing ordinances in this city, Mr. Watkins brought back with him copies of the plumbing measures of several cities, including New York, in addition to hearing the latest ideas of the sanitary engineers in the big cities. Mr. Watkins will meet the plumbers in the near future for a conference, after preparing the ordinances on this work.

Melrose, Mass.—John T. Barker, who has held the position of inspector of plumbing in this city for the past five years has tendered his resignation to the board of health to take effect at an early date. Mr. Barker formerly held the position of inspector of plumbing in Stoneham in connection with his Melrose position but resigned that place some time ago and was succeeded by Representative Andrew J. Burnett of Melrose and it is said to be entirely likely that Mr. Burnett will be selected to fill the position in Melrose. Mr. Barker's resignation is due entirely to personal business reasons which are not made public at this time. The resignation will come before the board of health for action at their next meeting.

"The Peerless Quartet" at the Ohio Master Plumbers' recent convention in Springfield, O. Reading from left to right they are: Harry Snow, Herbert Swan, Harry Armstrong and H. F. Weaver (secretary and manager), all of the Peerless Selling Company, of Evansville, Ind.

Plumbing Legislation

Madison, Wis.—The Wisconsin Legislature is considering a bill introduced by a Socialist senator, Winfield R. Gaylord, which would provide that the city of Milwaukee engage only journeymen plumbers for municipal work and that they purchase their supplies direct from the jobbers and manufacturers. Milwaukee plumbers are the only ones affected by the proposed law. There is small chance that the bill will become law.

Nashville, Tenn.—The bill to provide for the licensing of plumbers in all cities above 10,000 in Tennessee has passed the house by a vote of 61 to 19, and, according to reports will unquestionably pass in the senate by a good majority, and become a law. The bill provides for an examining board of four members, one of whom shall be a member of the board of health, and the purpose of the measure is to secure sanitary plumbing in the future.

San Antonio, Tex.—An examining board of plumbers will be the new department added to the city government within the next few days. The new board will consist of four members, one of whom will be the president of the Board of Health, another a member of this board, the third a master plumber of not less than ten years' experience, and the fourth a journeyman plumber who has been actively engaged at his occupation for a period of not less than five years. Upon appointment of the new board every plumber—both

master and journeyman—of the city will be submitted to an examination as a test of his knowledge of the business. If he is adjudged upon examination to possess the necessary qualifications he will be duly licensed to follow the industry in San Antonio.

Personal

Herman C. Prox and W. B. Blowers, of the Frank Prox Company, Terra Haute, Ind., were in Chicago this week and called on some of their friends in the trade.

George Ayer, city salesman for the F. W. Webb Manufacturing Company of Boston, is again to be found in his usual haunts, after a six weeks' stay in the hospital occasioned by a painful street car accident.

Carl Falk, of 101 Beekman street, New York City, who was recently appointed eastern sales agent for Cochran, Drugan & Company, of Trenton, N. J., is still general sales representative of the Crescent Mfg. Co., of Scottsdale, Pa.

J. William Bayles, a prominent master plumber in Harrisburg, Pa., who is also well known in state association circles, was recently elected alderman on the republican ticket with an overwhelming majority in what has for many years been a strong democratic ward.

John Robinson, head of the well known plumbing firm of Robinson & Walters, Uniontown, Pa., has gone to Florida, where he will spend the remainder of the winter, returning early in the spring. While absent, the business will be looked after by his partner.

J. W. Kennelley, of Springfield, Mass., president of Massachusetts State Association of Master Plumbers, has the sympathy of his many friends in the trade on account of the recent death of his wife, Mrs. Mary A. Meyers Kennelley. Mr. Kennelley, three sons and three daughters survive her.

J. O. Sawkins, a successful plumbing contractor, of Denver, Colo., was recently elected president of the South Denver Improvement Association to succeed a prominent attorney in that city. This organization is one of the most progressive of the kind in that part of the country and his many friends are congratulating him on this new honor. Mr. Sawkins has also been appointed a member of a committee which is making a serious effort to have the plumbing ordinance of Denver revised and made up-to-date.

Charles D. Wallace, general manager of the Wallace Manufacturing Company, of Olmstead Falls, O., has severed his connection with that company, and has accepted a position as traveling salesman with the Central Brass Manufacturing Company of Cleveland, O. Mr. Wallace, who was formerly located at Pittsburg, Pa., where he was engaged in the furnace and lighting business with his brother, is well known to the plumbing and heating trade throughout this entire section of the state, and for the present will call on the trade in Northern Ohio.

Thos. N. Thomson, of Scranton, Pa., member of the American Society of Inspectors of Plumbing and Sanitary Engineers, and member also of the American Society of Heating and Ventilating Engineers, has the sympathy of a large circle of friends throughout the country on account of the early death of his wife which occurred on Wednesday, February 17, in her 41st year. Mrs. Robina Blair Thomson was the youngest daughter of the late Peter Blair, gas manager of East Wemyss, Fifeshire, Scotland. Mr. Thomson is left with five children to mourn her demise.

Frank R. Noss, president of the Canton Valve & Manufacturing Company, of Canton, Ohio, was a business visitor in Pittsburg last week, calling on the trade in that part of the country.

George D. Howell, of New York City, vice-president of the McCrum-Howell Company, was a recent business visitor at the branch offices of his company in Pittsburg, and while in that vicinity took occasion to pay a visit to the plants of his company at Uniontown, Pa. He made a complete inspection of both the enamelware and radiator plants, and found them running much steadier than they were on the occasion of his last visit several months ago. Business is picking up rapidly, and will be normal within a short time should the present rate of increase continue.

Obituary

Thomas J. Waters, a charter member of the American Society of Heating and Ventilating Engineers, and chief engineer for the board of education in Chicago since 1884, passed on at his home in this city on Thursday morning, February 25, after a short illness from pneumonia. Mr. Waters was born in Canada 59 years ago and came to Chicago when but 9 years old. He entered the service of the board of education in 1873 as an engineer. His work soon attracted attention and he was promoted to the position of chief engineer in 1884. He is survived by a widow, a daughter and three sons.

B. F. O'Shields, a master plumber of Atlanta, Ga., passed on at his home in that city on Tuesday morning, February 16, in his forty-eighth year. Mr. O'Shields had been engaged in the plumbing business at Atlanta for the past twenty-five years and his plumbing establishment was for many years located at 12 East Hunter street. His funeral was held on Wednesday, February 17, and the Atlanta Master Plumbers' Association was well represented among the pallbearers, David W. Yarbrough and J. H. Jennings acting in that capacity. Mr. O'Shields is survived by his wife and one daughter.

Frank F. Fiske, who did business as a manufacturers' agent at 101 Beekman street, New York City, passed on at the new Amsterdam Hotel in that city on Wednesday morning, Feb. 17, after a week's illness. Mr. Fiske was a young man, well known and popular in plumbing trade circles, having been with the Standard Manufacturing Company of Pittsburg, and the Ideal Manufacturing Company of Detroit, previous to engaging in business on his own account in Philadelphia, about two years ago. He moved his business to New York about a year ago but still maintained his residence in Philadelphia. His wife was with him at the time of his death in New York. Besides his wife he leaves four young children.

Chicago

Chicago, Ill.—The new Jas. H. Bowen High School at Eighty-ninth street facing Bessemer Park, South Chicago, is expected to be ready for occupancy January 1, 1910, and will cost some $500,000. Dwight H. Perkins, architect for the board of education.

Chicago, Ill.—The following are some of the more important building permits taken out this week: Frank Khou, a two-story brick store and flat, $10,000, at 10599 Ewing avenue; I. D. Pardon, a three-story brick flat, $15,000, at 637 Turner avenue; Bromide Portrait Co., a two-story brick building, $25,000, at 146-52 40th avenue; Hyman Brothers, a one-story brick theater, $12,000, at 234 North avenue; H. G. Parkam, one and two-story brick store and offices, $10,000, at 1200-10 Granville avenue; Joseph Clark, three-story brick flats, $13,000, at 447 Winchester avenue; J. C. Cockburn, two three-story brick apartments, $45,000, at 5303-9 Calumet avenue; Wheelock Lumber Mfg. Co., two-story brick flats, $15,000, at 945-53 N. Campbell avenue; Catholic bishop of Chicago, two-story brick residence, $18,000, at 2108-10 39th street; Mrs. H. Carlson, two two-story brick flats, $18,000, at 917-23 Roseher avenue; P. A. Johnson, five two-story frame residences, $10,000, 2782-2806 N. Leavitt street; A. P. Cranning, four one-story brick stores, $10,000, 1756-62 Clifton Park avenue.

The Great Northwest

Minot, N. D.—James Kennedy of Fargo, N. D., has secured the contract amounting to about $107,000 for constructing the water works.

Eau Claire, Wis.—The American Heating & Ventilating Co., a Wisconsin corporation, has filed articles of dissolution with the secretary of state.

Crookston, Minn.—Henry Ellis has opened a plumbing and heating establishment. He would like to receive catalogues from manufacturers of supplies in these lines.

Milwaukee, Wis.—John Beernink of this city will establish a plant at Eau Claire, Wis., for the manufacture of sheet metal and cornice work, and with a department for installation and repair of furnaces, boilers and heating plants.

Stevens Point, Wis.—The State Normal School here will be provided with a power house and full equipment under a bill now before the Legislature carrying an appropriation of $16,800. The bill is expected to pass without opposition.

Grand Forks, N. D.—The Dakota Plumbing & Heating Co., of Grand Forks, N. D., has been incorporated with a capital stock of $10,000. The incorporators are Hans C. Nelson, Peter Braseth and Andrew Peterson, all of Grand Forks, N. D.

Minneapolis, Minn.—The Hasey Heating Co., 310 Third Ave. S of this city has been awarded the hot water heating contract for C. A. Minock, 31 Clifton place. Architect, H. Jones, Lumber Exc. Bldg. This company also has secured the steam heating, $3,850, of the hotel owned by Gamble and Ludwig, 9th street and Hennepin. Architect, A. L. Dow, Lumber Exc. Bldg.

Pennsylvania

Washington, Pa.—The contract for the hot water heating system for the fine new residence that is being built here for Mrs. Joanna Born has been awarded to N. F. Binte, of this place.

Bellevue, Pa.—Gordon & Wehling, of this place, have been awarded the contract for the plumbing system for the fine new residence that is being built here for Mrs. Elizabeth Woelful. The residence will contain several very fine bath rooms.

The Brass Salesmen at the convention of the Ohio State Association of Master Plumbers held last week in Springfield, O. Reading from left to right they are: Lee Dinkel, Wm. G. Stewart, J. H. McCormick and M. R. Emrich.

Avalon, Pa.—The contract for the plumbing in the new residence that is being built here for Martin N. Vrydaugh, the Pittsburg architect, has been awarded to Gordon & Wehling, plumbing contractors of Bellevue, Pa. The residence will contain three handsome bath rooms.

Pittsburg, Pa.—The contract for remodeling the entire plumbing system in the All Nations Bank on Carson street, South Side, has been awarded to the George H. Soffel Company, of 425 Fourth avenue. The contract calls for installing new fixtures, piping, etc., throughout the entire structure, and amounts to about $2,000.

Monessen, Pa.—Elmer Lehto has moved his plumbing establishment from the old location at 409 Schoonmaker avenue to larger and more adequate quarters at 469 Motheral avenue, and will have about double the space in his new location. For some time he has been seriously cramped for space, and has been unable to secure a satisfactory location.

Pittsburg, Pa.—A new plumbing establishment has been opened at 4782 Liberty avenue, this city, by E. W. Rau, a well known local plumber. Mr. Rau was formerly in the same line of business here as senior

member of the firm of Rau & Genge, retiring from that concern when the business was dissolved by mutual consent last November. He will conduct a general plumbing contracting business.

Pittsburg, Pa.—George Burry & Brother, of 841 Washington avenue, North Side, this city, have received the award of the contract for remodeling the entire plumbing system in the Boyd & Burry Building, Washington and Beaver avenues, this city. The contract calls for tearing out all old fixtures and replacing them with new ones of the most modern design, thus making the contract one of considerable importance.

South Sharon, Pa.—A new plumbing and heating establishment has been opened here by P. J. Koch at 714 Broadway. Mr. Koch conducts another establishment at 33 Ormond avenue, Sharon, which will be continued as in the past, and the local shop will be a branch which will handle all business in this city and vicinity. It will be conducted entirely independent of the house at Sharon, although all work will be under the direct supervision of Mr. Koch.

Pittsburg, Pa.—The contract for the hot water heating systems that are specified for the large new apartment building which will be known as the McCutcheon Apartments in the East End, has been awarded to E. C. Hock, 7533 Hamilton avenue, Brushton, Pittsburg. There will be three separate buildings in the group, each of which will have an individual heating system. Mr. Hock has also been awarded the contract for hot water heating the new Pfeiffer residence that is being built in Homewood, this city.

Lock Haven, Pa.—The contract for the plumbing and heating systems that are specified for the new $150,000 Lock Haven Hospital that is being built here to replace the one destroyed by fire has been awarded to Love & Company, of this city. The contract is a large one, as a large number of the fixtures will be installed in the many bath and toilet rooms, nurses' quarters, private rooms and operating rooms. The building will be of reinforced concrete and brick, and will be absolutely fireproof. A steam heating system will be installed.

Coraopolis, Pa.—Bert D. Lee, a well known plumber, has opened a modern and well equipped plumbing and heating establishment at 1019 Fifth avenue, where he will conduct a general contracting and jobbing business in these lines. Mr. Lee is a man of considerable experience in this business, and has for a number of years past been connected with the local firm of Campbell & Robel, which recently discontinued business owing to financial difficulties. Mr. Lee applied for and received admission to membership in the Pittsburg Master Plumbers' Association last week.

Punxsutawney, Pa.—The Brown Hardware Company of this city has opened a large plumbing establishment in the rear of the hardware store, and has equipped it with the latest and most approved machinery and appliances for handling large or small contracts in plumbing, steam and hot water heating. The concern built a two-story addition to the present building, all of which is devoted to the new department, which will, however, be conducted separate from the remainder of the business. A large and complete stock of plumbing fixtures and supplies will be carried.

New York News

Buffalo, N. Y.—The Frontier Plumbing and Heating Co., have secured a large contract of plumbing at the Pierce plant of the American Radiator Co.'s, at Buffalo, N. Y.

Lima, N. Y.—G. S. Banter has secured the hot water heating contract, $550, in the residence of E. T. Vary. Mr. Banter also is to install a fine bath room for J. C. Deal of this place.

Hempstead, L. I.—H. V. Corman & Co. have been awarded the contract for the steam heating and plumbing in a new building containing a store and dwellings for V. Donkin at Mineola, L. I.

Financial Trouble

New York, N. Y.—Emil Gabel, sales agent for belting and mill supplies at 88-90 Reade street, has filed a petition in bankruptcy with liabilities of $13,705.

Millbury, Mass.—James H. Ferguson, plumber and tinsmith, has filed a petition in bankruptcy. He owes $4,738 distributed among seventy-five creditors and has no assets.

New York, N. Y.—Charles W. Wood of 10 St. Nicholas Terrace, formerly in the steam heating business, has filed a petition in bankruptcy with liabilities of $17,091 and assets $18 cash on hand.

Contemplated Work

Washington, D. C.—Sealed proposals will be received at the office of the Supervising Architect until 3 o'clock p. m. on March 25, 1909, for the contruction complete of the U. S. Postoffice at Boulder, Col., in accordance with the drawings and specification.

Washington, D. C.—Sealed proposals will be received at the office of the Supervising Architect, until 3 o'clock p. m. on March 31, 1909, for the construction complete of the U. S. Postoffice at Ruston, La., in accordance with the drawings and specifications.

Wheeling, W. Va.—Bids will be received by the clerk of the Board of Education for the installation of heating and ventilating systems in the new high school building in this city until 5 p. m. on March 10, 1909. Plans can be seen at the Builders' Exchange in Chicago, Pittsburg, New York City and Cincinnati, and also at the office of Giesey & Faris, architects, in this city.

Burlington, Ia.—Sealed proposals will be received at the office of D. S. Cooper, secretary of the board of education of the Independent School District of this city, until 3 p. m. of Thursday, March 18, 1909, for power house building, chimney, pipe work and conduit, and boilers and equipment for a central heating plant in Burlington, according to plans and specifications prepared by Wm. H. Bryan, consulting engineer, and Temple, Burrows & McLane, architects.

Tips on New Work

Clarksburg, W. Va.—The citizens have voted to issue $120,000 bonds to improve and rebuild the water works system.

Washington, D. C.—A bill appropriating $500,000 for a marine hospital at San Francisco has been reported favorably by the senate committee.

Little Rock, Ark.—A bill appropriating $160,000 was passed by the House for the erection of four Agricultural Schools in various parts of the state.

Portland, Ore.—E. E. Merges, owner of the old Gaston home near King street, will install electrical wiring, plumbing and heating in the building.

Perry, N. Y.—It is reported that the Building Church Committee of the Presbyterian Church here has authorized the erection of a new edifice to cost some $25,000.

Council Bluffs, Ia.—Plans have been prepared and bids will soon be asked on a central steam heating and electric lighting plant for the Christian Home orphanage here.

Boise, Ida.—J. E. Tourtellotte & Co. have prepared the preliminary plans for the proposed building for the Children's Home Finding & Aid Society, which, it is estimated, will cost approximately $30,000.

Lindsay, Cal.—A new gas plant is being projected for this town, and Charles Burr, president of the company preparing to do the work, states that a large quantity of pipe for the distributing system will soon be ordered.

Iowa City, Ia.—Plans are reported being under contemplation for the erection of new buildings and additions to present buildings at the State University of Iowa to the extent of nearly $200,000. Proudfoot & Bird, architects, Des Moines, Ia.

Seattle, Wash.—Plans are completed and it is expected that work will commence soon on the new hospital building for the Sisters of Providence at 18th and Jefferson streets. The building will cost nearly $1,000,000. Somervell & Cote, White Bldg., architects.

St. Johns, Ore.—C. R. Donnell, secretary of the gas company now holding the franchise for a gas plant in St. Johns, states that Eastern capital has been interested and that a representative is now in Portland. Mr. Donnell states that under the new order of things it is probable that a plant costing $150,000 will be built.

Minneapolis, Minn.—Plans are drawn for an eight room brick addition to the Margaret Fuller School building with open plumbing, steam heat and fan ventilating. E. S. Stebbins, architect, 614 Masonic Temple. Mr. Stebbins is also at work on plans for an $18,000 addition to the Schiller school building including steam heat and plumbing.

Indianapolis, Ind.—Plans for the new city hall which Indianapolis is to have are practically complete and will be submitted to Mayor Bookwalter and the Board of Public Works this week. George M. Brill, the consulting engineer, says it is his opinion and the opinion of the architects that the expense of erecting the building will be kept within the bond issue of $600,000.

Washington, D. C.—It is planned to make many improvements in the National parks. A concession has been granted to Frank A. Miller, proprietor of the Red Lands Hotel at Riverside, Cal., for a $500,000 hotel in the Valley of the Yosemite. The plans submitted call for steam heat, electric light, 200 baths and all the modern luxuries. The other hotel erected at the Grand Canyon of the Yellowstone will have 400 rooms with a large number of connecting bath rooms, steam heat and all the modern conveniences and luxuries. It is expected that both hotels will be ready for guests in the summer of 1910 and the contract requires that the work of construction shall start at once.

Some well known members of the plumbing and heating traveling fraternity of the Atlantic coast and Eastern states enjoying the breezes of the briny deep on a warmer day than this. The gentlemen shown are Messrs. Stokes, Holland, McAllister (Tom & Jerry) and Jewell. Photograph by our Mr. Winslow.

BUILDING OUTLOOK IN KANSAS CITY, MO.

[Special.]

Kansas City is on the verge of a big building era, "the largest in its history," says W. A. Merriman, vice-president of the George A. Fuller Construction Company of Chicago. Mr. Merriman was in the city for several days looking over the field and getting familiar with future promised conditions. His firm had the contracts for the greater part of the big buildings put up here in the past few years, and Mr. Merriman says that of all the seventeen cities in which the Fuller Company are now erecting buildings, not one of them has the promise that Kansas City has. They are now finishing the eleven-story Sharp building at Eleventh and Walnut streets.

It is estimated by builders that there are now in course of construction in Kansas City buildings repre-

senting an outlay of $1,500,000, and it is claimed that there are lying in the offices of the different architects plans for contemplated buildings that mean an ultimate expenditure of from $10,000,000 to $15,000,000. They may not come all at once, but the Fuller Construction Company seems sufficiently confident that they are on the way to have its Mr. Merriman make occasional visits to keep in touch with the prospective builders. Grand avenue, Walnut and McGee streets, south of Twelfth, and immediately adjoining the present retail center, is the mecca of land and building prospectors. Within the last few weeks there have been a number of important real estate transfers in this district, and the John Taylor Dry Goods Company, Schmelzer-Ames Company and equally as prominent firms are talking of putting up seven, eight and ten story buildings within the confines spreading out of the city's retail district. The Kansas City Star, an evening newspaper, is going to the extreme of leaving its present quarters at Eleventh and Grand, and building a skyscraper as far out as Eighteenth and Grand. This is considered a bold move, as the latter territory is now the haven of second-hand clothing dealers, small shops, saloons and inferior buildings varying in height from one to three stories. The Star management may induce other builders to follow in its wake, but of course this is all problematical. There are revivals of rumors of skyscrapers going up soon on the Gates property at Tenth and Grand, directly across from the R. A. Long 14-story building; also a skyscraper at the southeast corner of Twelfth and Walnut, a new hotel building of ten stories at Tenth and Wyandotte, and many other large and important structures. Even down in the west bottoms, the beehive of wholesale industries, there is talk of a ten-story office building.

The building era that Mr. Merriman so assuringly speaks of is dependent to a great extent on the building of the contemplated union railroad passenger station and freight terminals. The railroads stand ready to spend $15,000,000 just as soon as a satisfactory ordinance can be had from the city. Negotiations between the city and the railroads have been pending for years, and it begins to look as if they were going to get together. The outpour of money for the new buildings, the plans for which are clogging the offices of the architects, is depending somewhat on the settlement of the depot problem. The Union Station, which is to cost $3,000,000 alone to build, and the plans for which are being drawn by Jarvis Hunt, architect, Chicago, is to be located on Twenty-third street, between Main and Wyandotte streets. The Merchants' and Manufacturers' Association, an organization formed to promote the location of industries in Kansas City, states authoritatively that when the depot question is settled there will be an influx of industries from the east, south and north to this city.

Among building constructors the cut in steel products is cutting some figure, and they are telling prospective builders to take advantage of it. They are advising to file for future delivery, and their advice might be taken.

Last week's realty sales were over $1,000,000. Said A. A. Whipple of the Kansas City Real Estate Exchange, Monday:

"Kansas City real estate is now at the highest point that it has been since the panic of 1907-8. Increased confidence in land is being shown each day, and while at first it was thought the impetus was merely temporary, the steady demand for good property, business and residence, has convinced the real estate men that there is some stability to the general rise of the business."

New Jersey

Milltown, N. J.—Henry A. Christ has recently started in the plumbing and heating business.

Elberon, N. J.—Chas. H. Rudloff is installing a complete plumbing system in Fred Wettach's new riding academy.

Perth Amboy, N. J.—T. E. Zangenburg, of 226 Oak street, has just started work on the plumbing in Peterson's flats on Barclay street.

New Brunswick, N. J.—Samuel Skewis has started the roughing-in of the plumbing and heating on the Alford Hall new residence on Hartford street.

Summit, N. J.—The contract to install Broomell's system of vapor heating in the residence of George H. Williams has been awarded the Berle-Riviere Co.

South Amboy, N. J.—P. J. Sullivan is just moving into his new building on Stevens avenue and will soon be ready to dig into his usual rush of spring work.

Asbury Park, N. J.—Hogg Williamson & Walton are installing five complete bath rooms in a new summer residence being built by the Improved Building Co. of New York.

Perth Amboy, N. J.—Geo. W. Hoagland, a local contractor and builder, has recently secured a license and will conduct a plumbing and heating business at 27 Park avenue.

Keyport, N. J.—Gordon Woodey has just been awarded the contract for the plumbing and heating work in Chas. Jewel's new residence, the figures being a little more than $1,000.

Perth Amboy, N. J.—Kelly & McAllinder have the plumbing work in the addition to the Amboy Art Glass Works. They are just starting work on the heating and plumbing in the Watson business block.

New Brunswick, N. J.—Walter Abrams, of 236 Hamilton street, has been awarded the contract for plumbing and heating in a new tenement house. He is busy at present with several plumbing jobs in Hyland Park.

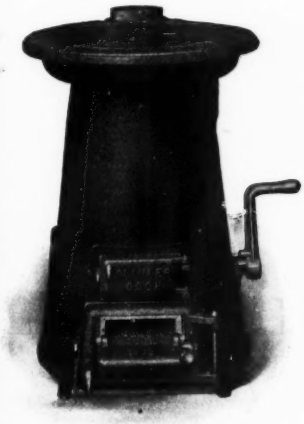
Allenhurst, N. J.—Archie Height has recently secured two attractive plumbing contracts, one being the work in J. G. Campbells' new residence and the other the bath room outfits in Thos. Cullen's new residence.

Rahway, N. J.—Rockliffe & McCann have opened a plumbing and heating shop at 147½ Main street. Mr. Rockcliffe is a practical man along plumbing and heating lines and will have charge of that branch of the work.

Perth Amboy, N. J.—R. J. Galvin, of 386 State street, entertains traveling salesmen every afternoon at the above number; he is also doing a little plumbing and heating work at spare time. He has recently secured the contract for $3,700 worth of plumbing in the grammar school. A $4,800 bid landed the plumbing and

Spring Demand.

One of the best methods of "boosting" sales is by having plenty of stock on hand and displaying it freely. IDEAL Water Heaters are seasonable goods and present tendencies indicate a larger sale than ever on these heaters for Spring installation.



IDEAL Water Heater.

An attractive window display of IDEAL Water Heaters will frequently suggest to the prospective buyer the wisdom of having his auxiliary hot water supply installed now and ready for summer use, before the rush of the steam fitters summer work begins. Suggesting timely purchases shows good business ability.

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heating work also at Number 8 graded school for Mr. Galvin.

Matawan, N. J.—A. White has the contract for the installation of the plumbing and steam heating in the new residence of A. J. Miller, located at South Amboy. He also has plumbing and heating work under way at Milltown.

Rahway, N. J.—William H. Sauerbruen & Co. is the firm name now to be seen on the window of an attractive looking plumbing and heating establishment located at 75 Irving street. The place of business was opened on February 1.

Jersey City, N. J.—The Werner Bros. Co., of 1131 Summit avenue, has been awarded the plumbing and gas fitting contract, amounting to $2,587, on two five-story brick buildings owned by Joseph N. Sonvary, 709-711 Dëmott street, West Hoboken.

Perth Amboy, N. J.—A. J. Grothen is the name of the new manager of the Sanitary Plumbing Construction Company. Mr. Grothen is an old and experienced man at the game and has things moving along nicely at the new quarters of the company at 5 King street.

New Brunswick, N. J.—After conducting a successful plumbing and heating business, at 89 Albany street, for 44 years, Mr. Hugh McKeag has decided to take in a partner. The partner to be is Mr. McKeag's son, George, who has grown up in the business and is a thorough master of the craft.

Perth Amboy, N. J.—The towns of Sewaren and Keasbey have made application to the city for an extension of the water mains in their direction. The city mains are so located that it will require some 6,000 feet of piping for the Keasbey extension and something over 10,000 feet for the Sewaren extension.

Perth Amboy, N. J.—J. N. Kennedy, of 537 State street, seems to be pulling down his share of the good work this winter. He has recently secured the contract for the plumbing and heating in the residence being erected by H. Rippin, the contract figures reaching $1,500. He has also secured contract for steam heating systems in two residences in South Amboy.

O. T. Carson.

Southern Notes

Asheville, N. C.—J. C. McPherson has contracted for the plumbing work in three new residences here.

Elizabeth City, N. C.—E. E. Etheridge will soon open an electrical and plumbing establishment in this city.

Asheville, N. C.—A. E. Felthouse has an excellent contract under way in that of the plumbing and heating installation in the new Merriweather building here.

Knoxville, Tenn.—W. A. Slanter has succeeded to the plumbing business formerly conducted at 208 West Clinch street under the firm name of Cowell and Slanter.

Knoxville, Tenn.—Warwick, Haws & Co., formerly located at 308 West Church street, have moved their plumbing and heating business into temporary quarters at 703 South Gay street.

Johnson City, Tenn.—L. P. Scantlin has entered into partnership with C. O. Biddle here in the plumbing and heating business and that firm name has been changed to C. O. Biddle & Co.

Asheville, N. C.—J. R. Rich & Son are altering their large plumbing and heating establishment here and when operations are finished ample space will have been provided for increased facilities.

Columbia, S. C.—W. B. Guimarin & Company has been awarded the heating contract for the new deaf and dumb institution to be erected at St. Augustine, Fla. The consideration amounts to $2,600.

Hendersonville, N. C.—H. T. Duffy, who recently engaged in the plumbing and heating business here would be glad to receive catalogues and price lists from manufacturers and dealers in those lines.

Knoxville, Tenn.—The Ashe Plumbing Company, formerly doing business at 210 West Clinche street, has dissolved its business at that address. Rumor is afloat that it will be continued by B. P. Cowell, formerly of the local plumbing firm of Cowell and Slanter.

Bristol, Tenn.—R. B. Hayes has had an unusually nice assortment of work on his books. At present he is placing the plumbing work in a new hotel for E. A. Brown and has completed additional installations of plumbing work in the Barker building and in a residence for Sam. McCreary. The hot water heating plant recently installed here in the Presbyterian parsonage was also executed by Mr. Hayes.

Johnson City, Tenn.—Here one will find a prosperous growing city and there is no firm in it that enjoys a larger degree of this evident prosperity than C. O. Biddle & Co., the only plumbing and heating concern in that immediate vicinity. Following are a few of their contracts: Plumbing and heating in the Dobson & Miller building, hot water heating in W. J. Mathews' $16,000 residence, heating and plumbing in residence for Amzia Smith and Eugene Lyle and a similar installation in the Johnson City M. E. Church.

E. De Forest Winslow.

Pacific Coast

Benecia, Cal.—The plumbing firm of Lopas Bros. is in financial difficulties and has been adjudged bankrupt.

San Francisco, Cal.—The plumbing firm of Jung & McLeod has been dissolved and the business will be continued by J. J. McLeod.

Oswego, Oregon.—The Dominican Fathers will in the near future erect a main university building, dormitories and several smaller buildings at a cost of about $300,000. Rev. Father A. L. MacMahon is at the head of this order.

San Francisco, Cal.—The Risdon Iron Works are very busy at the present time on repairs and alterations to the steamer Admiral Sampson. A feature of the work is a change that is being made from coil burning to oil burning apparatus.

Fort Stevens, Ore.—E. Gustafson of Astoria, Ore., has been awarded the contract amounting to $46,600 for the construction, plumbing, heating and electric wiring and fixtures of a gymnasium and bowling alley and four double sets of non-commissioned officers' quarters and the construction, plumbing and electric

wiring and fixtures of a double set of firemen's quarters at this post.

San Francisco, Cal.—The Mechanical Dust Suction Company has just secured a contract from the Phelan Improvement Company for installing a vacuum cleaning system in the new Phelan Building at Market and OFarrell streets. The cost of this system is to be $13,500. No building is considered modern now unless equipped with appliances of this character and it is interesting to note that up to six years ago nothing of this character was in use. The first plant that was ever installed in San Francisco and what was claimed at the time to be the first successful one ever placed in operation anywhere, was an experimental plant in the old Palace hotel. This was so successful even in its first crude state that an order for a complete outfit was placed. Previous to the fire, however, there were but few buildings here equipped with vacuum cleaning apparatus, owing to the expense of installing them in completed buildings but now they are in universal use, both here and elsewhere. Portable sweepers are coming into general use here and these are now on the market in a variety of styles for all purposes.

Squelched.

The Man—"When I look at the stars I realize how insignificant I am."

The Girl—"Is that the only time you get next to that?"—Cleveland Laeder.

Patents

912,274. Pump Connection. Charles L. Bastian, Chicago, Ill.

912,280. Sanitary Appliance. Howard G. Brott, San Jose, Cal., assignor to Sanitary Toilet Appliance Company, a Corporation of Arizona.

912,286, 912,287 and 912,288. Thermostat. Edward W. Comfort, Chicago, Ill., assignor to National Regulator Company, Chicago, Ill., a Corporation of Illinois.

912,293. Temperature-Regulating Device. Walter W. Curtis, Chicago, Ill., assignor to National Regulator Company, Chicago, Ill., a Corporation of Illinois.

912,304. Adjustable Pilot-Light Attachment for Gas-Fixtures. George Gilcher, Ridgefield Park, N. J.

912,320. Portable Hot-Fluid Heating Apparatus. Henry T. Offterdinger, Washington, D. C.

912,383. Water-Meter. Albert H. Kennedy and Clarence H. Kennedy, Rockport, Ind.

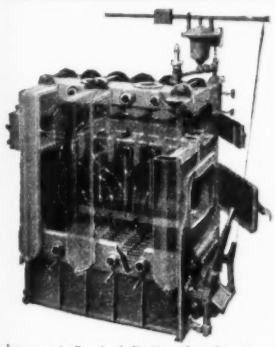
912,466. Cock. Thomas M. Gleason, Racine, Wis.

912,467. Low-Pressure Fluid-Heating System. Egbert H. Gold, Chicago, Ill.

912,506. Hydrocarbon-Burner. Asa W. Straight, Chicago, Ill., assignor of one-half to The Turner Brass Works, Sycamore, Ill., a Corporation of Illinois.

912,597. Flush-Valve. Daniel W. McNeil, Cincinnati, Ohio, assignor to The John Douglas Company, Cincinnati, Ohio, a Corporation of Ohio.

THIS IS WORTH REPEATING



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Of course, you expect a boiler to do a lot of hard work but there are so many cases where sudden accident or carelessness has broken a boiler that it is worth while to prepare for such an emergency.

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NEW YORK	129 Worth St.	MINNEAPOLIS, MINN., Plumbing & S. F. Supplies Co.
CHICAGO	34 Dearborn St.	ST. LOUIS, MO., L. M. Rumsey Manufacturing Co.
KANSAS CITY	120 W. 11th St.	DENVER, COLO., Kellogg & Stokes Stove Co.
OMAHA	916 Farnam St.	

912,595. **Washbasin.** Daniel W. McNeil, Cincinnati, Ohio, assignor to The John Douglas Company, Cincinnati, Ohio, a corporation of Ohio.

912,599. **Flushing-Valve.** Daniel W. McNeil, Cincinnati, Ohio, assignor to The John Douglas Company, Cincinnati, Ohio, a Corporation of Ohio.

912,632. **Ball-Cock.** Louis B. Thoré, Boston, Mass.

912,665. **Flushing-Tank.** Allen R. Gilmore, St. Louis county, Mo.

912,673. **Combined Soldering-Iron, Torch, and Portable Light.** Arthur Harf, New York, N. Y.

912,803. **Water-Softening Apparatus.** William M. Bruce, Chicago Heights, Ill., assignor to Kennicott Water-Softening Company, Chicago, Ill., a Corporation of Illinois.

912,809. **Union Hose and Pipe Coupling.** William L. Canniff, New York, N. Y.

912,824. **Closet Seat.** Edward L. Delany, New York, N. Y.

912,885. **Reinforced-Concrete Water Pipe or Conduit.** John M. Phelan, Jackson, Mich., assignor to The Reinforced Concrete Pipe Co., Jackson, Mich., a Corporation of Ohio.

912,890. **Valve.** Earl W. Roberts and William Roberts, Detroit, Mich., assignors to The Roberts Bros. Manufacturing Company, Detroit, Mich., a Corporation of Michigan.

Burlington, Iowa.—The Russell Sewage Disposal Company of this city has finished the installation of its sewerless sewage disposal system at Edw. Artz's residence at Augusta, Ill.—**Adv.**

With the Makers

Climax Sanitary Company, of 334-340 Guoin street, Detroit, Mich., announces that besides making the "Split-Proof" closet tanks and seats it is still making tanks and seats of the same construction as formerly manufactured by the Buick & Sherwood Manufacturing Company, for the reason that some plumbers still use them. It is also interesting to note that some of the Climax Company's ball cocks and syphons are made from the original patterns owned by the old company.

South American Defends the Latin Race Against the Charges of Inertia in Business Methods.

"So many folks who visit South American countries will talk to you about the laziness of the Spanish American and about the manana habit. I have been doing business in Latin American places for many years now and also I have had some experience in the United States. I want to say that I haven't observed any very great amount of hustling being done in the United States of late," said a man from Colombia the other day to the New York Sun.

"For instance, a man in business here gets to his office about 9 a. m. and goes out to lunch at noon or so. Then after he comes back, after spending a fair amount of time at his meal, he is prepared to quit work at 5 p. m.

"Now, down in Bogota, for instance, folks get to work in their offices at 8 a. m. and they stay there until 6 p. m. or later. They don't take so much time for lunch either. No man in Bogota thinks of making an engagement for dinner until well along toward 7:30.

"A South American came into the office of a company here one day when I was there and asked for the price of a certain commodity that we handle. It happened that in order to be sure about the terms the factory had to be consulted. That man complained to me of the leisurely business methods here.

"He said he thought the information should have been in the office and failing that there was no reason why he should have to wait two weeks to hear from the factory. He said the process was like this:

"A day or so after he asked at the office a letter was sent to the factory. That letter was put on file and answered in due course, probably three or four days later. Then it was mailed and received in the office the next day.

"Then after other letters ahead of it had been attended to it was copied for him. The next day perhaps it was mailed, and the day after it got to him.

"Altogether he figured out that it took about two weeks for him to hear of it. He wasn't impressed with the hustling of the Americans."

Mother's Hairpin.

The doorbell broke the other day,
  Pop couldn't make it ring.
Said he: "I'll have to get a man
  To fix the blamed old thing."
My mother said: "Oh, don't do that,
  Think what you would have to pay,"
And then she took a hairpin out
  And fixed it right away.

We lost the back door key last week,
  'Twas when the door was locked;
Pop fumed around and said things till
  The neighbors were all shocked;
Then Mom she got a hairpin out
  An' poked, an' pretty quick
She had the bolt turned in the lock;
  The hairpin did the trick.

There's nothing much that Mom can't do
  With hairpins; seems as like
One day she'll fix Pop's busted watch,
  An' next 'twill be my bike;
If we wus poor I'll bet that she
  Could make hard luck take wings
A-goin' round the city with
  A hairpin fixin' things.

—Pittsburg Sun.

Descendants of the Ark.

The great editor carefully read the aspiring contributor's joke, then, looking up from the copy, inquired:

"Where's the other?"

"Other? Why there isn't any other!"

"Um! I thought that Noah took two of every kind into the ark."—New York Times.

WITHDRAWN